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BLIND DATE:

MATE SELECTION IN VISUALLY IMPAIRED AND SIGHTED POPULATIONS

Richard P. Trelfa

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Thesis submitted to the University of Durham

Department of Psychology

for the Degree of Doctor of Philosophy.

April 2004.

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ABSTRACT.

This thesis documents a series of investigations examining processes of human mate selection from an evolutionary psychological perspective. Key issues addressed include the importance and priority of visual cues, the role of cues that signal alliance qualities and the relative importance of both in long-term relationships. The sequence of studies begins with investigations into the similarities and differences between fully sighted and visually impaired participants (VIP) while the last study concentrates on correlates with marital satisfaction in sighted participants only. In order to test the hypotheses proposed in each study, a series of different questionnaires in a variety of media were used, asking about both idealised and real-life relationships. Study one, involving 50 visually impaired and 103 sighted participants, replicated Buss's (1989) rating study. There was a highly significant similarity ($r = 0.920$) between the order in which the VIP and sighted participants rated the characteristics. A difference in how important sighted and VI participants felt "good looks" was in a potential partner was also evident. In study two, 100 sighted and 50 visually impaired participants were asked to put 20 characteristics into the order in which they would like to know that information about a potential partner. Sighted participants consistently asked to know the level of physical attractiveness of a potential partner before the visually impaired participants did. In study three, 63 visually impaired and 44 sighted participants were asked about a long-term relationship they had experienced. Analysis of the returned questionnaires revealed that relationships involving at least one visually impaired person were very similar to relationships whose members were both sighted, except in how the partners were introduced and in where they went on their first date. Study four asked 53 women

and 29 men (all fully sighted) about a current or dissolved marriage. It was concluded that perceiving your partner as being a "good ally" improved the chances of having a more satisfying relationship, but selecting a partner who was very physically attractive could lead to the opposite effect.

Acknowledgements.

I would like to express my deepest gratitude to Dr. Campbell, without who this thesis would not have existed. I would also like to thank Dr. Hampton for all his help and all those who read articles to me or corrected scanned documents. This research was made possible by a postgraduate studentship from the Economic and Social Research Council.

Dedication.

I dedicate this work to Mrs P. Trelfa who showed me that blindness is just a "bloody nuisance" and to Mrs A. Trelfa who kept me going through the darkness.

I see with my ears

I hear the leaves in the tall trees whispering in the night

I hear the sea, dark and deep and the splash of the dolphins leap

I hear the flames crackling and the window frames rattling in the wind

I see with my ears.

I see with my nose

I smell the blossom pearly-grey and the hay nearly mown

I smell the ploughed earth, cows in the byre, the smokey fire

I smell Granpa's pipe, Gran's lavender room and Mum's faint perfume

I see with my nose.

I see with my mouth

I taste the strong black coffee and the thick brown toffee between my teeth

I taste the yellow of the lemon, the green of the melon and the red of the tomato

I taste the orange of the carrot, the purple of the plum and the gold of the sun on my face

I see with my mouth.

I see with my hands

I feel the sharp edges, slippery floors, smooth ledges

I feel lemonade in cold canisters, hard wooden banisters

I feel hands to hold, arms on shoulders, faces to touch

I see with my hands.

From Phinn (2001).

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CHAPTER ONE

INTRODUCTION

This thesis is designed to examine human mate selection - that is, how and why people are attracted to one another. The initial investigations concentrate on visually impaired people (VIP) in order to see if there are any differences in the stated mate preferences of VIP as compared to a population of fully sighted people. As an introduction to these studies, there will be a brief discussion of what is already known about preferences in sexual partners for both long- and short-term relationships.

Reproductive behaviour (e.g. meeting and choosing partners, courtship, marriage, raising families, etc.) plays an important part in most people's lives (Baker, 1996). This is not just a phenomenon of any one particular culture: Buss and Schmitt (1993) claimed that all known societies have some kind of system for the formation and maintenance of alliances between women and men for the purpose of rearing the next generation and according to Betzig (1989) "...the consensus is that marriage comes as close to being an universal as anything about human behaviour can" (p.654). The process of choosing with whom to mate with is "...cerebral and highly selective" (Ridley, 1994, p.128). If this is so, then the study of reproductive behaviour should play an important role in investigations into human nature.

A crucial element in reproductive behaviour (and therefore of the study of human nature) is mate selection. When choosing another person with which to share the role of producing offspring (and in the case of some animals, including humans, as a life-

long companion) an individual will want to be sure that she or he is making the correct decision. Many theories put forward in this area build upon an idea first proposed by Charles Darwin (1871) in his book "The Descent of Man and Selection in Relation to Sex". Here he proposed an idea which has become an essential part of most investigations into such behaviour; the theory of sexual selection.

Sexual selection.

Darwin first proposed this theory in order to explain certain phenomena that did not fit into the principles of the theory of natural selection. The problem the theory tries to solve is that - counter to the predictions drawn from the theory of natural selection - certain features that have evolved in some animals do not increase (and may even decrease) that individual's chances of survival. Ryan and Rand (1999) stated that sexual selection seems to favour conspicuous, even gaudy, signals. Unfortunately, this conspicuousness also attracts the attention of predators. For example, the much cited peacock's tail is clearly a disadvantage to the peacock when trying to hide, or run away, from predators; the sky lark hovers in the sky trying to attract the attention of mates by singing, but this also attracts the attention of its predators; and male birds of paradise have a bright - even gaudy - plumage which makes them very attractive to female birds of paradise, but also very conspicuous. Thus it was reasoned by Darwin (1872) that the feature (e.g. the tail, hovering as a "sitting target" or the bright plumage) must have some purpose other than to improve the chances of the individual's survival.

Sexual selection theory explains these phenomena by claiming that they are designed to improve the owners chances of attracting a mate by, for example, advertising his (it

is usually the male of the species, see below) presence and suitability as a mate. In other words, sexual selection theory suggests that some of the more risky appearing behaviours and physical features of animals can be explained not by an attempt to increase their survival chances but to increase the chances of being chosen by a suitable mate and thus improve the individual's chances of reproducing successfully. While natural selection is often called "survival of the fittest", sexual selection could be termed "survival of the sexiest". It can be seen therefore that there is a conflict between the forces of natural and sexual selection. As the former results in evolutionary pressures pushing organisms into being better survivors, the latter pushes organisms into being better reproducers. The overall result is usually features that are conspicuous, but not extravagantly so - the conspicuousness is often constrained by natural predation.

Sexual selection is about securing sexual partners and raising young. The process includes an individual selecting a potential partner, attracting it and competing with others of the same sex so that the animal can secure sexual access to the chosen mate. Since it is the females who are forced to invest most in the process of rearing young, they constitute a limiting resource for males. Hence it is usual for males to do most of the attracting and competing, with females exercising choice among suitors. In the original writing, Darwin proposed that there were two forms of sexual selection. Firstly, there is competition between the individuals of one sex (generally male) for a finite number of members of the opposite sex. This will tend to encourage the evolution of characteristics giving an individual an advantage over its rivals. This "intrasexual" selection helps to account for larger sizes in males compared to females since it is usually the males that are competing with each other (Alexander, Hoogland,

Howard, Noonan and Sherman 1979). It also contributes to a lowering of the aggression threshold of males and, in certain species, the evolution of weapons. Competition between the members of a sex tends to make that sex larger, more aggressive and develop features or learn the use of weapons with which to defeat their rivals (Daly and Wilson, 1983; see also Geary, 1998).

Secondly, "intersexual" selection is the process where individuals of one sex use various methods to attract members of the opposite sex. This process tends to lead to the evolution of a male characteristic (again it is usually the males), which attract females. This usually results in males becoming "sexier" (more elaborate, more brightly coloured and able to perform courtship rituals).

Competition between members of the same sex for mates may take place before mating, as with ungulates (e.g. the deer family *cervidae* and the antelope family *bovidae*; Clutton-Brock, Albon and Guinness, 1982). Females may even incite the competition between males while copulation is taking place; for example, female elephant seals (*mirounga angustirostris*) vocalize lightly during copulation attracting other males and testing the dominance of her would-be mate (LeBoeuf and Peterson, 1969). On the other hand, the competition may occur after mating has taken place. There are a number of species whose females are able to store sperm and who regularly do not seek another mate until her current store is used up (Parker, 1970). The bowl and doily spider (*frontinella pyramitela*) female, for example, can store sperm for some time and often mates with several partners. However, as is usual in spiders, but not in insects, the sperm of the first male does have priority (Austad, 1982). It is thought that such sperm competition has led to the evolution of two

opposing forms of adaptation in males: (1) First male advantage – adaptations to reduce the chances of another male's sperm being used (for instance, mate guarding and depositing a copulatory plug) e.g. male fruit flies may transfer anti-aphrodisiacs to their mates, inhibiting courtship by other males (Jallon, Antony and Benamar, 1981); (2) Second male advantage – adaptations that reduce the chance that the previous male's sperm will be used for fertilization (e.g. the penis of the damsel fly (*calopteryx maculata*) which not only deposits sperm in the female, but also removes sperm previously deposited by another male; Waage, 1979).

Lepidoptra (moths and butterflies) produce two forms of sperm: eupyrene for fertilizing the eggs and apyrene sperm (consisting of more than half of the ejaculate), which displace already deposited sperm and defend against new attempts to fertilize (Silberglied, Shepherd, and Dickenson, 1984). In humans, it has also been claimed that up to forty percent of sperm may be deformed and that these deformed sperm play a suicide role, stopping the passage of any other male's sperm. Baker (1996) has claimed that humans have three forms of sperm: the "egg-getters", which are concerned with fertilization; the "killers" which are concerned with tackling sperm already deposited by another male and the "blockers" which are concerned with stopping subsequently deposited sperm. This idea has, however, been criticized. Selection pressures should favour the use of seminal fluids to form the plug (thus not wasting resources in producing sperm that cannot fertilize an egg) and there should be more deformed sperm in species in which females are typically mate with more than one partner and no such correlations have been reported (Harcourt, 1988).

Even conception does not seem to be a barrier to male-male competition. For example, the presence of a strange male mouse (or perhaps only his odour) early in pregnancy may cause the female to abort and become receptive again (Bruce, 1963). Competition still continues after birth. A strange male langur monkey (Preseytes Entellus) may take over a group, driving off the resident male and then killing any offspring of the former leader. This obviates the new male from investing in another's offspring and usually results in the mother becoming sexually receptive again (Hrdy, 1977).

Sexual selection results not only in the evolution of physical traits but may also have an effect on an animal's behaviour. The most obvious example of this is in courtship: for example, a bowerbird attracts his mate by constructing a nest and decorating it with feathers and flowers (Ridley, 1994).

Accepting that males display certain features or perform particular behaviours in order to attract a mate – despite the fact that the feature or behaviour may impair his survival chances - the issue then is how this situation arose in the first place. Why should females prefer mates that display apparently gaudy traits or particular behaviours? Although Darwin proposed the original theory that began the sexual selection debate, he did not seem to anticipate (and certainly did not answer) this question (Ridley, 1994). There are, however, a number of ideas that have been proposed since Darwin in an attempt to explain why a female of a species is attracted to features such as the peacock's tail (see Thornhill and Gangestad, 1997). The "sexy-son" or "good taste" theory proposed by Fisher (1930) states that a mating pair, in which the male displays a particular feature and the female prefers that feature, will

be more likely to result in male offspring that display the feature in question and female offspring that prefer that feature in males. Any female offspring, having inherited a preference for mating with individuals displaying the feature, will mate preferentially with such individuals. Thus any male who does display the feature will be more likely to find a mate; and females who prefer the feature will then have more choice of a mate as the feature spreads. This will mean that any female preferring the feature will be more likely to find a satisfactory mate and so both the preference for the feature and the feature itself will spread throughout the population. This will in turn of course, mean that the males which have the feature will be even more sought after and even more likely to find a mate and so on. Thus the feature spreads across a population of animals. In short, a male displays a trait because females prefer it and females prefer that feature simply because other females do. If a female of a species selects a mate without the feature, her sons will not be able to inherit it for themselves and her daughters will not prefer the trait in her mates. Since most of the females of the species prefer the feature and most of the males display it, her daughters and sons may therefore be doomed to a life of celibacy. For example, a hen pheasant often ignores a single cock pheasant that has not mated but will happily join the other hens in an already-established harem of another cock thus ensuring that her offspring inherit the same traits as the offspring of the other females (Ridley, 1994). In some breeds of grouse, females prefer to mate with males that have already mated with other females. One problem with this idea however, is that since the preference for any feature is arbitrary, it does not really explain why females should consider a particular feature "beautiful" and thus attractive in the first place.

*An alternative hypothesis to the proposal that females choose heritable beauty to pass on to their sons (Ridley, 1994) is the "good genes" (or "healthy-offspring" or "good sense") theory. This claims that the feature thought to be desirable by a female is an indicator of the male's good genetic quality, specifically how disease resistant and vigorous he is. The feature advertises that the male is an excellent prospective mate and his offspring are likely to be strong, fast animals with a better chance of surviving. Thus a female would be well advised to choose him as a mate. Any male offspring of a female who responds to this advertisement is likely to inherit both the feature and the advantages that the father had. These offspring will therefore have a greater chance of surviving and of leaving surviving offspring themselves, all of whom will have an increased chance of inheriting the feature. Any female offspring will also tend to inherit the feature, but will also be more likely to prefer males with that feature and so the chances of offspring of the next generation inheriting the feature will be increased even more (Andersson, 1994; Gangestad and Simpson, 2000).

Unfortunately, a difficulty with both the sexy son and good genes theories is that if they are followed to their logical conclusion, the chosen trait will eventually achieve fixation in the population. This means that all the males will display the chosen trait or behaviour and that there will be nothing for females to choose between. Males will have to display more and more exaggerated traits and there will eventually come a point when the benefits of the attracting power of the feature will be outweighed by the costs of it. So sexual selection will grind to a halt, as the trait reaches a balancing point between cost and benefit. Despite this problem there seems to be good mathematical reasoning to support the theory. A computer model, designed to test the

sexy-son theory, found that there was a line of equilibrium where the costs of an ornament are balanced by the benefits of the female choosing it. The simulation also found, however, that costs incurred by the female in taking time to be choosy (for example, greater risk of predation and opportunity costs) then the equilibrium is thrown out of balance again. It thus becomes too costly for the female to be selective. Fortunately, the good-genes theory provides a solution; genes that control ornamentation are subject to random mutations and the more elaborate the feature is, the more likely the mutation is to make the feature less elaborate. This is called "mutational bias" and is enough to swing the balance back towards a profit for the choosy female because in choosing the most elaborate feature she is also choosing the male with the least mutations.

Another factor, which may explain why there is still variability in male ornamentation and behaviour, is parasites. The continuous battle between parasites and host is an arms race in which both host and parasite are trying to get the upper hand. When the host evolves a defence against the parasite, the parasite will sooner or later evolve a way round that defence; a way against which the host will eventually evolve a defence and so on. By choosing to mate with the healthiest males in a population, however, the females are continually selecting a different set of genes (Hamilton and Zuk, 1982) and thus aiding the fight against parasites. Data collected from over six hundred species of birds and some species of fresh-water fish shows that the more glamorous the species, the more parasite-ridden they are (Pruett-Jones, Pruett-Jones and Jones, 1990; Zuk, 1992). In human populations also, data suggest a link between selection and parasites: Low (1990) claims that the greater their parasite burden, the more polygamous a society is. This occurs because, in a species is infested by

parasites, females will be more receptive to sharing males of good genetic quality (polygamy) rather than risk mating exclusively with a parasite-ridden individual. Thus they not only ensure a better quality of genes for their offspring, but they also prevent any cross-infection. It must be said however, that these are only correlational relationships and not proven cause-and-effect links.

An alternative theory was proposed by Zahavi (1975). His "handicap hypothesis" claimed that sexual selection could result in traits that are detrimental to survival (and thus should have been selected against) provided the traits are only sufficiently handicapping for females to recognize the superior genetic quality of the male that is displaying the feature. In other words, the trait is linked to superior qualities in males; any male who is capable of surviving to reproductive age, despite the costly and conspicuous development of that particular feature, must be a formidable individual and worth mating with, thus passing on his genetic superiority to his offspring. For example, the King of Saxony bird of paradise has a long feather that grows from just above its eyes. This feather only starts to grow once they have reached four-years-old, is replaced every year and is a handicap when hiding or running from predators. It is also very prized by the local indigenous Indian population as well as by Archbold bowerbirds. Thus if a male King of Saxony bird of paradise sports one of these feathers, it is honestly advertising that it is sufficiently superior to be able to survive to reproductive age despite the problems posed by the feather. Therefore any female King of Saxony bird of paradise will be at an advantage if she chooses this male, since she will be passing on his genes on to her daughters and sons. One argument against this theory is that when the selected males' superior genes passed on to the next generation, so are the genes for the handicap: which should be selected against.

Any offspring inheriting the superior genes will also inherit the encumbering trait that advertises their superiority: they will be at no further advantage than if their father was of a lesser quality but without such a large handicap. This argument, however, does not take into account the fact that the father also had both the handicap and the trait that allows him to cope with the problems incurred by the feature.

In both the good-gene and handicap theories, the feature that advertises the male's superiority must be an honest signal; a trait that cannot be faked. If the feature on which any choice rests can be produced by any male, regardless of their quality, then the signal is no longer valid. The female of the species could be deceived by any male and will have to look for another, more honest trait. One solution to this problem would be for females to develop a mechanism to detect frauds. If females can detect male deception, then it will be a disadvantage for the male to develop a feature that is costly to produce and maintain and that does not improve his chances of attracting a mate. If, on the other hand, the trait is a true handicap (a long tail or gaudy plumage) then it could only be maintained by a male of a superior calibre and thus is an honest advertisement (Ridley, 1994). The more handicapping the feature, the more it should be selected for since the greater the handicap the greater the superiority of the male. This is the opposite of Fisher's idea that there would be a finite extent to the evolution of the selected trait (at the point of balance between the benefits the trait affords in mating and the disadvantages the trait incurs in survival). Over the last few years, Zahavi's proposal has received support from mathematical models. These models make two slight adjustments to the original theory. First, the handicaps indicate the quality of the male in a graduated manner. Secondly, the

handicaps must be able to indicate the nature of the deficiencies of those without it (see Andersson, 1986; Iwasa, Pomiankowski and Nee, 1991).

An additional factor, which impinges on the effect of sexual selection on a species, is its position on the "r-K selectivity continuum". This is a spectrum that describes the reproductive behaviour of animal species. At one end of the continuum are "r-selected" animals (such as some amphibians and fish) who produce large numbers of offspring but who invest little or no parental care in raising them. They tend to be smaller and faster breeders living in changeable environments. At the other end, K-selected animals (such as primates) give birth to far fewer offspring but invest heavily in parental care to make sure that their offspring survive to reproductive age. In contrast to r-selected species, K-selected animals tend to be larger, slower breeders and live in a more stable environment (Martin, 1992). Between these two extremes lie most animals, finding a balance between producing large numbers of offspring (who they cannot control sufficient resources to raise but whose numbers will ensure that at least some of them will survive) and risking only a few offspring (but ensuring their survival "personally").

In the case of some species of frogs, which lie near the r-selected end of the continuum, the female lays large numbers of eggs, which the male then fertilizes externally. The parents leave the eggs to develop and "hatch" by themselves, the tadpoles then swim off and fend for themselves without any parental intervention or investment. Since neither the female nor the male care for the young and there is no concern for the male over paternity because the eggs were fertilized externally, there is less inter-sexual selection. The mother is not looking for a male who is able to

provide for her and her offspring, and the male is not looking for a female who is unlikely to cuckold him nor is the issue of fertility important because the eggs are laid and the male simply has to fertilize them. There may, however, be some intra-sexual competition between males for the chance to fertilize a particular clutch of eggs. This will tend to skew the effects of sexual selection towards the development of larger males who are able to maintain their dominance over other males but they do not have to display gaudy features in order to attract females.

By contrast, the female of a more K-selected species will be looking for a male who will be able and willing to provide resources for her and her offspring. "Resources" may be food, territory, protection or even genetic quality. For example orang-utans (*pongo pygmaeus*) live alone in large territories. A male's territory usually contains a small number of female territories within it, each female territory tending to give her access to more than one male. There is little interaction between individuals beyond mating and defence of territories: the male provides little material resources for the female or any offspring (Dunbar, 1988). A male must, however, be able to defend his territory and thus access to the females therein. Therefore, if his dominance is heritable, females will want males who can successfully defend a territory and hopefully this choice will allow her sons to establish their own ground.

Female Choice Without Paternal Investment.

Whatever the explanation of the mechanisms behind sexual selection, it is obvious that in most animals it is the females who are exercising choice about their mates. It is the females who are the active choosers within the species and therefore it is they who are driving evolution through sexual selection. As pointed out by Trivers (1972)

this is, when analysed, unsurprising. In all animals, other than a few exceptions, females invest more in the production of the young of their species. In the first place, they must provide an egg (one of the largest cells in the body) for males to fertilize with their sperm (one of the smallest cells). After conception it is usually the female that has to gestate the foetus (or hatch the egg) and, where there is past-partum care, it is usually the female who rears the young animal to a point where it can function independently. Where the female does not provide care for the young (such as in most frogs), it is not the task of the male to provide the care instead: where there is little or no maternal care there is usually no paternal care either and the young are left to fend for themselves from an early age.

Many female animals, therefore, do not indiscriminately allow males to mate with them and abandon them. Instead females require the male to make some additional investment in the process of rearing the next generation. Even in species without paternal care, females will select males on the basis of their genetic quality. In these cases, males are "investing" in their offspring by passing on their high genetic quality and thus a greater chance of survival. In order to select a mate who is willing and able to invest and thus gain something else from males other than a brief moment of their time, the female must be very careful in the choice of male she decides to mate with. This, then, involves the careful selection of the males by the female.

In an attempt to ensure they are selected by a mate, therefore, males must display the feature or behaviour that is required by the female (intersexual selection). This may not only involve the display of physical features, but in the case of certain species it may be necessary to exhibit particular behavioural strategies. For example, some

males are required by the female to present a nuptial gift, in the form of a food parcel. This will, presumably, compensate the female in some way for the energy she will have to expend in bringing the offspring to reproductive age. (Some males even have to make the ultimate sacrifice - the female will eat them after mating has taken place.) In other species (where the pair will form a long-term bond in order to raise the offspring) the food brought to the female may be an indication of how good the male is at catching food and thus a sign of how good the male will be at providing for the female and their offspring. Other males do not have to provide any material resources as such, but do have to prove their dominance and superiority over other males, or provide a territory in which food and safety from predators and rival males can be found.

Female Choice With Paternal Investment.

It has been proposed that males can maximize their reproductive potential by finding mates who are able to raise their offspring with as little contribution from the male as possible (e.g. Buss, 1989). For some species, however, it may be more advantageous for a male to increase his investment in the next generation. The critical factor is the extra numbers of offspring surviving with paternal investment compared to survival rates of young without male investment multiplied by the number of females that he can inseminate. If it is possible for the female to raise the offspring on her own (possibly with the help of her kin) or there is no advantage in any parental care (either maternal or paternal), then there is no advantage for a male to invest in any young resulting from the copulation. On the other hand, if offspring are in need of biparental care, then it pays the father to invest in his offspring and for the mother to choose an investing male to mate with (Clutton-Brock, 1991).

Male Choice Without Paternal Investment.

For males who do not invest in their offspring, the choice of which female to mate with rests largely on female fertility. The likelihood of the female giving birth to offspring is significant to a male since mating (including courtship) takes time and this could be time spent in foraging for food or defending territory. In addition, if mating happens in exposed territory there is also the danger of predation. If the female is unlikely to give birth to the male's young, then the expenditure of time and energy will have been wasted and the dangers of predation will have been risked unnecessarily. Thus it may not be worthwhile for a male to mate with a female who is unlikely to give birth. Allied to this is the ability of the female to raise young (where applicable). In other words, if females raise young without male assistance (either alone or with kin) then the male needs to select a female who is capable of successfully raising his offspring to sexual maturity.

Male choice With Paternal Investment.

If a species does not require biparental care in order to secure the survival of the young, then it will be the females of the species who drive sexual selection. On the other hand, in species where paternal care improves the chances of young surviving, the choice may not rest entirely with the females - especially in monogamous species such as humans. If a male is to invest heavily in a partnership designed to raise young, then evolutionary pressures should result in males that also exercise choice in their mates.

If he is to have the expense of providing for his mate and their offspring and the opportunity costs in losing the potential matings with other females, then there will be evolutionary pressure on males to develop some form of mechanism for mate selection themselves. This requires the development of a mechanism for assessing the quality of females as potential partners and deciding whether they are worth pursuing. Although females are able to equalize any advantages that males have in being able to sire more children by "locking" him into a long-term or monogamous relationship (and thus benefiting from his resources and forcing him to invest in offspring) she must in return relinquish some of her advantage in being the sole chooser. The greater the investment the male makes in his offspring, the greater the evolutionary pressures on him to make careful mate choices (Buss and Schmitt, 1993).

Exceptions to the rule of higher investing females, which may help to support this idea, are animal species (such as mormon crickets and Panamanian poison-arrow frogs) in which sex roles are reversed; males invest more in offspring than females. In such species, the females are not only bigger than males, but that they also compete more vigorously for the more choosy males (Buss and Schmitt, 1993; Ridley, 1994). At whatever level investing males are able to express their choice, they will select females that are not only able to rear the male's young, but who are also less likely to have clandestine extra-pair matings and 'trick' him into investing in another male's offspring. This effect is especially strong in monogamous animals that stay together in long-term pairings or who require large amounts of parental investment.

Sexual Selection and Humans.

Humans are one of the most K-selected animals. *Homo sapiens* have a low r- max value (they are even slower breeders than their size would predict; Martin, 1992), relative to other members of their order. In humans, except for a few innate reflexes, the young are unable to do anything for themselves. As such they must be cared for by adults for many years during their development. Although the father normally invests in the offspring (human fathers invest more in their offspring than any other primate; Buss and Schmitt, 1993), most of the caring for the young is done by the mother. Thus female humans should select mates who "have the ability and willingness to provide resources related to parental investment such as food, shelter, territory and protection." (Alexander and Noonan, 1979). Many writers, influenced by Trivers's (1972) concept of parental investment, claim that human females' preference for men with good earning potential equates with the female preference expressed in other animal species for male resource holding power. Bixler (1989) queried whether it is possible to make a meaningful comparison between stated human preferences and observed preferences in other animals. In order to make such a comparison, it would be necessary to find infrahuman behaviours which were functionally equivalent to such concepts as “good financial prospects”.

In order to provide for their young, it is usual for humans to create pair bonds between the parents: a bond that tends to last for some time, even (in some cases) until one of the individuals dies. The process of forming a partnership has been formalized and, although there are some cultural differences, this normally consists of some form of promise to stay together for life. Bus and Schmitt (1993) claim that 80 % of humans enter into some form of formal partnership (usually called a "marriage") at some time

in their lives. It has been suggested, however, that in the evolutionary past such partnerships did not last for so long. Fisher (1989) reports that the most likely time for the dissolution of a partnership in the western world is during the fourth year of marriage. Thus she concludes that the optimum time of a partnership to last, in order to maximize both the partners' reproductive fitness, should be around four years (see also Miller and Fishkin, 1997; Zeifman and Hazan, 1997). This assumes, however, that the first child of a marriage is at least conceived, if not born, within the first year of the partnership (if not before). A major problem with Fisher's idea is that her proposal is based upon data drawn from a population of modern humans and it is doubtful whether the patterns found would be equally true of human ancestors 150,000 years ago. In support of her proposal, however, is the evidence that four years is the optimal time that a mother should wait between the birth of a child and becoming pregnant again. The existence of a second child, whether as a foetus or as a baby, is a threat to the first born. The new child will take the mother's time and resources away from the older child, thus diluting the quantity and quality of maternal care. Lactation prevents the mother from ovulating again for some time, so if the older child can defer weaning for as long as possible, then they will increase their chance of surviving. In tribal groups (where lactational contraception is usually the only option) the time that is usually found between young is about four years (Buss and Schmitt, 1993; Lee, 1979).

As with all other animals, it is impossible to observe directly humans in their evolutionary past. The results of evolutionary pressures however lie before us, as they do for every other species. The morphology and behaviour of animals today is the direct result of their lifestyle and its associated pressures in the environment of

evolutionary adaptiveness (E.E.A.), although human behaviour may be unique in having also been modified by language and culture. Human language and our capacity for reflection provide a unique opportunity to investigate not only observable behaviour as is the case in other species but also experiences, emotions, attitudes and preferences in relation to real and hypothetical situations. We are able to ask a human about her or his mate preferences, rather than having to rely on observed mating behaviours as in non-human animals.

The ancestors of humans evolved a number of features to cope with a variety of problems within their environment and these psychological mechanisms are still with modern humans today, even if they are no longer adaptive. A common example is contemporary food preferences. Humans evolved preferences for the taste of particular types of food (those which were rare but high in energy). Those individuals that did not have these preferences would not survive as long or leave as many children as those who preferred sugary and fatty foods. Thus modern-day humans still prefer to eat sweet and fatty foods - although this preference may lead to obesity in a world where such foods are no longer rare but freely available (Buss, 1989; Buss and Schmitt, 1993).

Another set of problems faced by our ancestors, as with most other animals, was connected to reproduction. Solutions to the questions of, for example, how to select a mate, how to ensure paternity or how to obtain resources were answered by individuals' mate preferences (Buss and Schmitt, 1993). The unconscious algorithms that guide selection of potential partners, laid down in the human psyche during their evolutionary history, are hypothesized to be present in modern-day humans. It is

these preferences that have been studied from an evolutionary psychology perspective by Buss (e.g. 1989), Schmitt (e.g. Buss and Schmitt, 1993), Feingold (e.g. 1992) and others in an attempt to illuminate human reproductive behaviour. These authors have found an apparently universal set of mate preferences that can be demonstrated in humans, indicating a species-typical adaptation.

*As with other mammals, human fertilization and gestation happen internally within the female body. Females therefore put considerably more effort into raising young than males do (especially if lactation is taken into account as well; Buss and Schmitt, 1993). It thus follows that human females should prefer long-term mating relationships with partners who are able and willing to provide for them and their children. Complimenting this theory, is another view (expressed by a number of authors, e.g. Buss, 1989) is that the human males should prefer short-term mateships in which they can invest as little of their resources as possible and which are most likely to result in children. This is to say that a man will tend to leave more children by being involved in many short-term relationships, leaving as many children as possible but without investing in any of them. Thus in order to maximize their reproductive potential, men should prefer mates who are fertile. However Geary (2000; Geary and Flinn, 2001) has championed the idea that in order for human children to compete successfully as adults they need two parents to care for them and thus paternal investment is advantageous for males as well as females. This would mean that both sexes are looking for a partner who is willing and able to invest in their children and who will not avoid their parental "duties" leaving the other to care for the offspring (see Kanazawa and Still, 2000). Men with few resources and low genetic advantage advertise their willingness to offer commitment and investment in

the partnership as a trade-off against their hindering "low-quality" (e.g. Cicerello and Sheehan, 1995).

Short- Versus Long-Term Relationships.

*In humans, the duration of a mateship may vary from a few hours in the case of a "one-night stand", to many years in the case of a marriage (Buss and Schmitt, 1993). Humans are very flexible in the strategies they use in reproduction - some relying on one or more long-term partnerships, others taking part in a series of short-term couplings and others adopting a mixed strategy that involves some combination of both strategies. Strategy may depend upon ecological factors (e.g. sex ratios, the "market value" of the person, or the availability of resources). Because of the difference in minimum investment in a child between females and males there is also a sex difference in mate preferences: women have been hypothesized to prefer long-term relationship so that the male can invest in the children, while men should prefer short-term partnerships where they can invest little and move on to the next relationship (Buss, 1989; Trivers, 1972).

These are broad generalizations and there are within-sex differences as well as between-sex differences (Buss and Schmitt, 1993; Gangestad and Simpson, 2000). The explanation for this lies in the different ecological factors in mating situations. The cues preferred in a potential mate will not only differ between female and male, but also from female to female and male to male, depending upon whether a short-term or long-term relationship is being sought. If looking for a short-term mate, cues indicating a lack of commitment and good genetic quality will be prioritised. On the

other hand, a long-term mate may be selected on the basis of cues indicating resourcefulness and the willingness to commit.

What Women Want.

Although it has generally been considered (e.g. Buss, 1989) that women maximize their reproductive potential by mating in long-term relationships only, there are adaptive advantages in engaging in short-term mateships as well. Preferences in partners should reflect these different criteria for choosing a short- rather than a long-term partnership.

Women and Long-Term Relationships.

According to sexual strategies theory (Buss and Schmitt, 1993) long-term relationships are advantageous to females because they offer male resources and protection. These investments by the male offset, at least in part, the investment made by the woman in their children.

It has been argued that the ability to invest resources translates, in contemporary society, to signs of wealth accruement. Such signs could include wearing expensive clothes, driving fast cars, eating in expensive restaurants and other forms of conspicuous high spending (Buss and Schmitt, 1993). This may also account for females' preference for males who have a better earning potential (as demonstrated by a better education or personality traits such as ambition; Buss et al., 1990; Sprecher, Sullivan and Hatfield, 1994). One objection to the assertion that women should prefer men who are wealthy is with the fact that our ancestors would not have been able to accrue wealth. Ancestral human society was organised around hunting and gathering,

and in such societies there was no opportunity to accrue wealth. The only wealth that could be obtained was through the hunting and gathering of food. Without means of preservation, it is not possible to store and accrue food in order to become wealthy. It is not until human society developed agriculture and animal domestication that an individual could be said to be wealthy. This raises questions as to whether earning capacity (mate preference in modern humans) can be said to be the equivalent of resource control (mate preference in our ancestors).

One answer to this problem could be that it is not wealth or earning potential that is critical, but the status associated with them. In the E.E.A. some males may have gained dominance over others by providing more meat for their mates. In modern societies, this has become equivalent to being wealthier than other men. Richer men are probably not only better educated, well connected and able to afford better housing and status symbols, but these factors would also grant status. Another solution to this problem is that a better earning potential equates (via the greater wealth it promises) to a greater ability to provide food.

Males displaying signals that indicate willingness to invest resources and a generous character are preferred by females as mates (Buss and Schmitt, 1993). Agreeableness (sociability) may also be an indication of a male's willingness to invest resources (Sadalla, Kenrick and Vershure, 1987).

Protection may be another important consideration for females. Buss and Schmitt (1993) found that females prefer larger males as mates. This may be due to a larger male's increased ability to protect the woman and her offspring. Sadalla, Kenrick and

Vershure (1987) have suggested that dominance as a preferred characteristic may also be due to a more dominant male's increased ability to protect.

Women and Short-Term Relationships.

As stated above, it is usually considered more advantageous for women to adopt a strategy of long-term relationships in order to raise children. This is not, however, absolutely necessary. It is possible for children to be raised by women without forming a long-term alliance with a man, relying instead on her kin for support. Geary (2000) however, claims that children of one-parent families may well be as successful in later life compared to those from two-parent relationships.

Dawkins (1978), however, has demonstrated how a population of females could evolve where there are mixed strategies for reproduction - that is, where both females and males seek both long- and short-term relationships. In his simplified model, women and men each have two strategies. Women can either be "coy" (only copulating with a male after a long courtship period) or "fast" (copulating with any man who propositions her); while the males can either be "faithful" (who will wait for the length of a courtship and who will stay with the woman after copulation) or "philanderers" (who leaves the woman after copulation). Coy females never mate with philandering males but fast women mate indiscriminately. The model results in an evolutionarily stable strategy at the point where five sixths of the females in a population are coy and five eighths of the males are faithful. (Females and males do not have to be exclusively coy/faithful or fast/philandering, but any individual woman could spend five sixths of her time being coy and any individual man five eights of his time being faithful.) It can be seen, therefore that women may take part in short-term

relationships, although they are less likely to be able to access a man's parental investment and other resources over a long period of time in such short-term matings.

Gangestad and Simpson (2000) point out that women from societies in which they have greater access to resources are more willing to enter into polygynous relationships. Presumably, women from such societies are less concerned with a man's resource investment and can select mates on the basis of other qualities. It has been proposed by Buss and Schmitt (1993) that the main advantages that may have accrued for ancestral women in this context are security and protection from abuse at the hands of other, non-mated males; the opportunity to assess the potential of the male as a long-term partner; and possibly access to superior genes.

*Buss and Schmitt (1993) found that women looking for short-term relationships were concerned about gaining immediate access to male resources. They preferred their mates to be generous and give gifts early in the partnership and disliked stinginess. A short-term relationship has the advantage for a woman of being able to access the man's resources immediately. Desire for protection and security may also guide short-term mate choice. Buss and Schmitt (1993) also report that although women value physical strength in mates in long-term contexts, they value this attribute even more highly in short-term relationships. They suggest that a reason for this is that a male following a long-term strategy is heavily invested in one mateship and will go to greater lengths to ensure protection of their mate from other males. Thus a woman entering a short-term relationship is at more risk than if entering a long-term partnership. Choosing a physically strong male as a short-term mate may well deter abuse from other males. Since a woman in a long-term mateship is able to

rely on her partner's commitment for protection, his physical strength will be of less importance in relation to a less-investing mate. Thus although physical strength may be desired in both a short- and long-term mateship, it may be more important in the former than the latter. This is to say that a woman may be more successful in leaving descendants by choosing a more physically stronger male as a short-term mate since such a partner is less likely to invest so much in protecting her and may have to rely on his own strength. Short-term pairings may be a means of assessing potential long-term quality. Women have a significantly higher correlation between their preferences for short- and long-term mates than males (female: $r = .81$; male: $r = .63$) and Buss and Schmitt (1993) cite this as indirect evidence of women's use of short-term alliances as opportunities to test out potential long-term partners. In further support of this hypothesis, they note that women find the traits of "already in a relationship" and "promiscuous" as being undesirable in contrast to men whose short-term preferences were less influenced by these factors.

Ecological variables, such as operational sex ratio, may constrain a woman's choice of strategy. Guttentag and Secord (1983) claim that if there is a sex ratio bias in a population, whichever sex is in a minority can impose its wishes upon the majority. Thus if there are too few available males, then men can impose their preferences for short-term relationships on the females. If a woman wishes to form a partnership of any type at all, she will have to acquiesce to the wishes of the men.

Another ecological factor relevant to mating strategy is heritable protection against parasites. Gangestad and Simpson (2000) have pointed out that since parasites evolve in response to their hosts' defences against them, no species can be entirely parasite-

free. This being the case, it is advantageous to select a mate who has superior heritable defences against current pathogens. They conjectured that women living in an environment that is relatively high in pathogens, should be more willing to offer features such as exclusive maternal care in order to access superior genes. Thus, women in more parasite-prevalent environments may be more willing to enter into short-term relationships (see also Geary, 1998).

What Men Want.

Since male animals (including humans) do not have to wait for pregnancy and lactation to finish before they can inseminate another woman, they can maximize their reproductive potential by engaging in many short-term matings and investing as little as possible in any resulting offspring. They can father many children while committing few or no resources to each relationship. To pursue this strategy, a male should look for signals from women that denote fertility and should avoid women who give signs suggesting an expectation of commitment. Women, however, may not accept men in a short-term relationship unless he has qualities or resources that the woman desires and can access in return for copulation (see above).

Because females, in order to maximize their reproductive potential, should attempt to elicit male investment in any resulting offspring in return for sexual access (commitment to a long-term relationship), males may have to compromise by investing some resources. In the case of long-term mateships, a male will be able to monopolize the reproductive life of one woman, meaning that he will not have to spend resources searching for new matings and put himself at risk of contracting diseases from a new mate. Staying in a long-term relationship and investing in his

children may also increase their chances of surviving and subsequently mating. The man will also increase the certainty that the children are his through mate guarding. There are, therefore, some advantages in long-term mateships for a man.

In the case of a long-term mateship males should try to be more selective as to whom they commit their resources. Thus they not only look for signs of fertility, but should also look for signals that suggest honesty in their potential partners so that they do not find themselves cuckolded and investing in the children of another male (Buss and Schmitt, 1993).

Reputation may provide relevant information about relevant traits. This is one of the first pieces of information that a man may acquire about a woman (even before he has met her). He may also discover through third parties if she is good at looking after children and a reliable ally. If a woman is known to be promiscuous then a male may well not wish to mate with her in a long-term relationship because this may be considered to be a signal of lack of fidelity and he may find himself cuckolded (see below: Behavioural Cues).

Reputation, as transmitted via gossip, may also act as a form of social control over the behaviour of women (e.g. Flannery, 1933). This can be seen in the 'double standard' applied to the sexuality of women and men; a promiscuous man is seen to be a "stud" but a women exhibiting similar behaviour is labelled a "slag". Baumeister and Twenge (2002) have presented cross-cultural data indicating that it is in fact women who suppress female sexuality and not men. They explain their findings by arguing

that female sexuality is a limited resource over which women have control and by limiting it, they maintain its value.

An immediately accessible source of information about a woman is her appearance. Many women go to enormous lengths to enhance their appearance by wearing clothes that they believe will make their figure more appealing and by adorning their skin with make-up and tatoos. One important element of a person's appearance is facial attractiveness. It has been claimed that facial attractiveness may provide important cues about the underlying health of an individual: research has shown that more attractive people are perceived as being healthier. Males judge more facially attractive females to be more fertile and less likely to experience a range of medical problems (Shackelford and Larsen, 1999; Jones, Little, Penton-Voak, tiddeman, Burt and Perrett, 2001).

Another function of facial appearance in mate selection is in indicating the age of the potential partner. Age is an important factor in selecting a mate since in order to maximize his reproductive potential, a man should try to mate with a female who is at her peak of fertility. Fertility in human females typically peaks between the early and mid twenties and thus it follows that a man should prefer potential mates who are young. For a longer-term relationship, where a male intends to dominate the reproductive potential of a female, then fertility may not be the prime consideration. Instead reproductive value should be the main factor in deciding the desirability of a woman. Reproductive value is measured by the number of children it is possible for the woman to give birth to in the remainder of her life. The maximum reproductive value of a woman is as she is entering puberty: at this point she will have many years

of potential child bearing ahead of her. Thus whether the reproductive value or the fertility of a woman is used as a criterion for selecting a mate, youth is a major indication of that factor. Youth is associated with features such as smooth skin, good muscle tone, lustrous hair, full lips, sprightly gait and high energy levels (Buss, 1989).

Another aspect of appearance is a person's physical build and it has been found by various researchers that males from different cultures express similar preferences for body shape and size (e.g. Singh, 1993). The issue of waist-to-hip ratios (WHRs) has been much debated. It has been claimed that WHR is a reliable signal of a woman's reproductive age, fertility and overall health. Singh (1993) found that women with lower (0.7) waist-to-hip ratios were not only judged to be more physically attractive, but also healthier and more fertile - healthier females have much lower levels of testosterone than of oestrogen, resulting in more fat being deposited on the buttocks and hips rather than the waist.

It has been argued that olfactory signals may play a part in the attraction and assessment of potential mates. The mechanism through which this works is debated. One possibility is pheromones. Monti-Blok, Jennings-White and Berliner (1994) note that the concept of pheromones was introduced in the late 1950s to describe "substances secreted by an individual and producing behavioural effects in conspecifics" (p.381). Thornhill and Gangestad (1999) found that women experience heightened olfactory sensitivity during the most fertile phase of their menstrual cycle, although this does not fully explain the failure to find an association between the intensity and attractiveness ratings of body scent. They claim that males use some form of chemical(s) in order to signal to females. Chemical stimuli are used by many

species of animals to communicate with each other (Kohl, 1996; see also Agosta, 1994). There are a number of studies, which suggest that pheromonal communication may be implicated in a variety of human behaviours: including kin recognition and gender discrimination (Scholey, Bosworth and Dimitrakaki, in press). There is also some evidence that pheromones play a role in the phenomenon of menstrual synchrony, the synchronization of the menstrual cycles of women living together (e.g. Stern and McClintock, 1998). For more discussion on olfactory cues see Chapter Two.

Behavioural cues are also signals. Kenrick, Sadalla, Groth and Trost (1990?) stated that, in humans, differences in desired traits are more likely to be displayed or expressed through social behaviour rather than through physical features (such as displays of feathers or antlers in other species). It is likely, therefore, that the behaviour is an indicator that she or he is a potential mate that is worth pursuing. Grammer (1989) argues that in courtship both participants have to compare the costs of pursuit of a potential mate and the risks involved in the ensuing partnership (e.g. whether the female will be able to care for offspring or whether the male is willing to invest in offspring) with the perceived benefits of the relationship. According to Grammer this is achieved by observing the behaviour of the potential partner and using this information to predict future behaviour. Walster, Walster, Paliavin and Schmidt (1984) concluded that men prefer women who have a reputation for "playing hard to get" with others, but who do not require so much persuasion where they are concerned. This would seem to be an advantageous strategy for men; a woman who is selective will hopefully pass on her selectivity to his daughters. There have, however, been no reported findings showing a similar preference in women for men

playing hard to get with other women. This may be due to the fact that men place a higher premium on exclusive access to their partner.

At the beginning of courtship in humans, the behavioural style of the target person (as well as the person's physical looks and clothing) plays a role for both sexes in deciding whether or not to approach a potential partner (Grammer, 1989). Studies investigating non-verbal cues in interactions between males and females (e.g. Perper and Fox, 1980), suggest that it is the woman who initiates the interaction with non-verbal solicitations. Moore (1985) observed single women in discotheques and found that it was women who determined and controlled the approach of men. They were able to "elicit a high number of male approaches". This would of course give them the chance of selecting a mate from a large pool of available males. Women seem to be aware of the tactics they can use in flirting; whereas men, even successful ones, seem to be ignorant of how they initiate an encounter with a prospective mate.

Traits sought by both sexes.

In addition to those sex-specific features discussed above, there are a number of other features that are equally desirable to both sexes in prospective partners. Buss and Schmitt (1993) predicted that one of the characteristics sought by both women and men in long-term relationships is good parenting skills. It is unclear what signals could be used to determine how good an individual is at rearing children. Barkow (1989, p.229) hypothesized that "...intelligence is key to parenting skills: providing good judgement in protecting children in times of danger, good socialization practices to prepare the child for the adult world he or she will enter, and perhaps wisdom to

forecast environmental changes and trends that might be impending". Another clue to an individual's parenting skills would be to see how she or he reacts with children belonging to other people (e.g. those of a relative or friend), or even by selecting an older mate who has already successfully raised children. In primates where males invest very little in their offspring, males often mate with older females who already have young (Hrdy, 1977) however similar preferences have not been reported in humans. This is probably due to the fact that human males invest considerably in their own offspring and try to avoid providing resources to the children of other males.

A second mate characteristic, which may be of benefit to both females and males, are characteristics that indicate a good reciprocal ally. Mating relationships - especially long-term ones - require two genetically unrelated people to interact intimately with each other. It is thus an advantage to select a partner for such a relationship who will be a good co-operator and ally and who has kin who are similarly good co-operators and allies. Again there is little evidence to suggest how an individual may identify the attribute of reciprocity in a potential mate. Buss and Schmitt (1993), however, have suggested that characteristics such as kindness and understanding may give clues. Another solution to the problem may also be seen in the tendency for people to choose partners who are similar to her or himself (Buss and Schmitt, 1993).

Human Courtship.

Perper (1989) claims that "... courtship and subsequent sexual intercourse are the behavioural mechanisms of gene transfer and therefore have immense evolutionary significance" (p.439-40). There have been a number of studies of the behaviour of

women and men in their interactions with each other during the early stages of mate selection (a process called "courtship"). Perper has proposed a series of events that typically take place in a particular (almost prescribed) order during such interactions.

This sequence begins with one individual (usually the woman) approaching the other. This may seem a simple operation, but as Perper points out there are - even here- subtle complexities and rituals performed. For example, a woman may move closer to a man in whom she is interested and may start a conversation or wait for him to speak to her. In the same way, a man may approach a woman and begin a conversation. Before he approaches, however, he often performs what appear to be "displacement activities" (such as fiddling with a glass or plate or item of clothing). This is then usually followed by frequent turns towards the woman, looking for a sign of reciprocity. Women tend to display fewer of these displacement activities but instead spend some time discussing the man with their friends or, if alone, thinking about the best way of approaching him. The opening sentences of the conversation (often referred to as a "chat-up line") are also part of the approach.

The individual has two options in their reaction to the approach. They can either react positively (allowing further interaction) or negatively (rejecting the approach). Both can be done verbally or nonverbally. A positive reaction could be turning and smiling at the person approaching them and taking part in the ensuing conversation; while negative responses could involve turning away from or ignoring the other person. These two actions can both be accentuated by a polite or even a blunt verbal rejection. This approach phase of human courtship is very important, since without it no further

interactions, no matter how intimate, can take place. It allows both the participants to assess the other person and their chances of being accepted or rejected by them.

If the person being approached shows signs of acceptance rather than rejection, the two participants will be able to pass on to the second "talking" phase: The couple start a conversation. The topic of that conversation varies (usually including queries about personal details) but is influenced by environmental (both spatial and temporal) factors. For example, at a party, asking where the other person works or, in a student bar, asking their opinion of an examination (Perper, 1989). These conversations often seem benign, even vacuous, but in fact are opportunities to find out information about each other. The talking phase also enables the parties to find areas of mutual interest and thus create opportunities for meeting again. The information gleaned from this process will, of course, help both of them to decide whether or not to pursue the other person as a potential partner.

Perper (1989) claims that when strangers meet (at least in North America) they tend to form a "v-shape" so that they can look past the other person. As the talking phase progresses and the couple find a topic of mutual interest, they start to turn towards each other, until they are facing one another fully. The turning is done gradually and mutually - the process is not led by one partner and followed by the other. There is still an opportunity for one of them to abort the courtship. If only one person turns, then they usually end up in a "capital-t" shape with their shoulders at right angles to each other. This position rarely exist for long: either the person who has not turned will "catch-up" and the process proceeds, or the person who has turned will turn back to reform the v-shape and the process will either have to start again or the courtship

sequence will cease. As with the previous phases, both men and women can both initiate and stop the turning process. As the participants turn, their eye-contact changes qualitatively; the talker stops looking around (as happens in non-courtship conversations) and concentrates her or his gaze more and more on the listener's face and body.

After the couple has turned to face one another, one of them (usually the woman) will initiate the first touch. This may only be a brush with her hand (probably palm down: Perper, 1989) or the woman may move closer to the man so that contact is inevitable the next time he moves. The first touch seems to be more important to women: Perper suggested that one woman who claimed, "I never touch a man accidentally, only incidentally" was summarising the feelings of many others. How the man responds to this touch will determine how the courtship sequence will proceed. Non-reciprocation of the first touch will result in a de-escalation of the sequence; de-escalation will also happen if the man mistimes his response or is too forceful with his touch. Alternatively, the man may initiate the first touch. If this is done too soon, before a conversation has started, de-escalation of courtship is usually the result (Perper, 1989). On the other hand, if he is able to time his first touch correctly (by waiting for her to touch first, or for a clearly expressed interest on her part) the sequence continues to escalate.

The next phase of courtship develops at different times for different couples. After talking, turning and finally touching, the couple begin to synchronize their movements. At first this may only involve glancing at a particular object at the same time. As they start to gaze at each other and touch, their body movements start to

synchronize. Early synchronization does not always involve simultaneity. Imitative actions may be delayed by one or two movements. For example, the woman picks up her glass, prior to drinking while the man leans forward and reaches for his glass. As she drinks, he picks up his glass and as she replaces her glass on the table, he drinks. Another example of synchronization of movement is demonstrated as one of the couple leans forward while the other leans backwards. As the first person then leans back again, the other moves forward involving the couple in a swaying motion. This "counter-synchronization" is more frequently seen at the beginning of courtship. Later it is replaced by "mirror-synchrony". Here any action made by one of the partners is also performed by the other. Thus they both lean forward, or they both reach for their glasses simultaneously.

Synchrony is not a matter of consciously or deliberately copying the movements of the other person with a short time delay: it is an unconscious behaviour and the result is as if there was a mirror placed between the two people - the actions of one of the partners is exactly mirrored by the other person. It is rarely noticed by onlookers and even the people involved do not typically realize what they are doing. It would be very difficult, if not impossible, to fake synchrony and it is thus a form of filter, ensuring that both the individuals engaged in the sequence are seriously interested in each other. Synchrony can continue for some time and by the time the couple have reached "full synchrony" (movements of the whole body being synchronized) they appear to be fascinated with each other: by now they have turned to face one another fully, are touching frequently and are gazing at each other, focusing their attention fully on the other person.

The courtship sequence is, throughout its length, full of mutual action and reaction. Although it is often the woman who initiates the procedure or who makes the first touch, neither the woman nor the man can force the other to comply and react in the appropriate fashion. At every turn, a particular phase of the sequence can be initiated by either partner and likewise rejection can come from either the woman or the man. If a couple reach full synchronization then it is fairly certain that they are seriously interested in one another and are not just "stringing the other person along". This will then help to form a strong foundation on which to base a relationship. The talking phase has already elicited some information from the other person; and correct responses from them in the subsequent phases (e.g. turning, gazing, touching and synchronization of movements) will confirm their interest in a relationship. Moore (1985) states that these courtship behaviours are only part of a series of behaviours, which begins with mate attraction and ends with mate selection. The signals expressed during courtship seem to assist the woman in making a discriminative choice.

Summary.

It can be seen from the discussion above that there is more to the choice of a partner than simply meeting and talking to someone who seems compatible and/or looks acceptable. The selection of a partner involves, for a woman, the identification of how able and willing a man is to commit resources to her and their children, and, for men, how fertile and honest she is (Buss, 1989). As well as this, both sexes are looking for partners who are good parents, reliable allies and have kin who are reliable allies (Buss and Schmitt, 1993). A person selecting a partner with these characteristics will improve the chances of producing and raising viable children and

thus passing on their genes to the next generation. Mate selection is thus an important part of reproductive behaviour. Equally, identifying the characteristics of a potential partner is an important part of mate selection.

Many cues to partner quality have already been investigated (e.g. waist-to-hip-ratios, facial symmetry). From these studies it seems that much of the identification of partner quality is done through visual signals: e.g. observing the behaviour and physical traits of a person. It is possible, if not probable, that some of the other senses also play a role. For example, some quality of an individual's voice (such as pitch or accent) may offer information about the individual's potential as a mate. Smell (including pheromones) may also play a role; toiletry companies have built their business on the fact that humans like each other to smell pleasant. Some possible non-visual cues to partner quality are discussed in the next chapter.

CHAPTER TWO.

BLIND LOVE: NON-VISUAL CUES IN PARTNER SELECTION

The initial investigations of this thesis compare the mate preferences of the visually impaired with those of sighted people. It is argued that, if these preferences are indeed universal adaptations, visually impaired people (VIP) should have the same preferences for traits as do people w1ithout a sight impairment. But it also addresses the issue of the extent to which VIP are at a disadvantage in selecting a mate due to the absence of visual cues to these desired traits and examines whether VIP give greater precedence than sighted people to non-visual signals. This chapter looks at such alternative cues to mate quality that VIP can fall back on.

The first step in securing a partner is finding and meeting one. When people meet each other, they assess one another automatically and unconsciously. Interpersonal judgements occur as part of social interactions whether or not the parties are seeking mates. The greater part of this appraisal is based on nonverbal cues. Information can be gathered about another person through five basic channels; facial expression, eye contact, body movements, posture and touching (Baron and Byrne 2003). The first four of these are visual cues. Touching (e.g. shaking hands) normally only happens once the initial assessment is finished and a meeting has taken place.

The largely visual nature of people's judgements of others means that initial evaluations can be made at a distance. Being able to make rapid, unconscious judgements about others before actually coming face-to-face with them is advantageous since it affords

time to gather information before an approach is made and a decision is taken on how to behave. Little is known, however, about non-visual cues: what they might be and how they might work. In the last chapter, I considered a number of different cues that indicate a person's desirability as a partner. Most of these cues are detected visually. This is certainly for physical attractiveness as a cue for health and fertility and to a lesser extent for indicators of socio-economic status. There are, however, qualities other than fertility, health and the ability to provide resources that are preferred in partners (Buss and Schmitt, 1993). For example, both women and men (but especially men) prefer honesty and loyalty in their partners in order to avoid infidelity. These qualities too, must have some way of being detected by another person so that they can be used in mate selection. Traits such as honesty and good parenting skills are not visible directly and also must be in principle detectable. Although the overwhelming medium for cue detection seems to be vision, it is also likely that senses other than sight play a role, not only in detecting non-visual cues but also in the detection of cues to traits that are usually picked up visually. This multimodal approach to cue detection has been examined by Hall (1978) in her review of the interpretation of nonverbal cues. She found greater accuracy for visual signals alone compared to unaccompanied auditory signals. The greatest accuracy was found, however, in studies that used a combination of both auditory and visual signs. The larger role of vision is complemented by auditory cues.

Feingold (1992) states that males are attracted to members of the opposite sex primarily in terms of indications of their reproductive value or their fertility; these are mainly visual (e.g. youth and physical attractiveness). Females are attracted to cues of resource

acquisition which are, according to Feingold, generally "non-appearance-related". If the adaptive behaviour of selecting a mate on the basis of her or his physical attractiveness is mediated by deriving pleasure from the aesthetic appeal of beauty, then it could be predicted that in a population where visual signals are unobtainable (such as VIP), the sex difference in the desirability of physical attractiveness found in sighted populations would be absent (e.g. Buss and Schmitt, 1993). If a group of people cannot easily gather information on how beautiful another person is (such as the visually impaired), then it is possible that the males of that group would not use beauty as a selection criterion for a mate. Thus sex differences involving physical attractiveness as a criterion for choosing a mate would not exist in the visually impaired population.

Singh (1993, p.297), on the other hand, claims, that "All theories of human mate selection based on evolutionary principles assume that attractiveness provides a reliable cue to a woman's reproductive value and success ". If a preference for physical attractiveness in a partner is an evolved psychological mechanism for partner selection in men, then this adaptation will be present in all men and sight condition will not alter these preferences, even if a man is visually impaired and cannot see how attractive a potential partner is.

This situation creates the possibility of three options. Firstly, there may be some other way of detecting the visual cues (such as finding out from others how attractive a potential partner is). Secondly, there could be some other way of determining the information thought to be conveyed by the visual signal (such as how healthy and/or fertile a woman is in the case of physical attractiveness). The third alternative is that VIP

are indeed disadvantaged in selecting a partner, since they miss out on important visual signals. If one or both (they are not mutually exclusive) of the first two options holds true, then it will also hold true for other visual cues sought for by men and women. Since visual impairment is not a trait that has been selected for but is rather a random genetic or environmental event, VIPs cannot have evolved any specialized mechanisms for detecting partner quality. Hence they must use strategies which are also open to their sighted contemporaries but which, in sighted populations, are overwhelmingly swamped by visual cues and are thus difficult to study in a sighted population.

There are a number of candidate non-visual indications of partner quality. The best form of cue would be one that was detectable from a distance and without having to spend time in getting to know a person, so that resources need not be wasted in determining whether or not the potential mate is worth pursuing. For example, it is possible to get some idea of the size (height and girth) of a person by hugging them; however, this is not generally acceptable behaviour either to a stranger or on first meeting in western society. Thus the most likely senses, which could be used to compliment vision in the identification of a "good" partner, would seem to be smell (including pheromones) and hearing. Each of these will now be considered in turn.

Olfactory Information.

Hudson (1999, p.297) claims that odours are "...the phenomena that drive physiology and behaviour and thus they are the phenomena we need to understand". Humans, like all other animals, have a sense of smell. We are not consciously aware of it since we are

constantly breathing in our own scent and that of others and have become habituated to the odour of our own species. Humans (even those who are anosmic) respond to a variety of external chemical and olfactory cues (Monti-Blok, Jennings-White & Berliner 1994). Smell likely plays some role in the identification of appropriate partners.

Gangestad and Thornhill (1998) and Thornhill and Gangestad (1999) amongst others, have investigated the role of scent in the selection of preferred mates. They found a positive correlation between the attractiveness of a man's scent (on a T-shirt after two night's wearing) as rated by women and the man's bilateral symmetry. They also found that during the most fertile phase of their menstrual cycle, normally ovulating women preferred the body odour of relatively more symmetrical men to that of less symmetrical men. On the other hand, men did not show any preference for the scent of symmetric women over asymmetric women. (During times of lower fertility, women also did not show a preference neither did women who were using hormone-based contraception.) There was, however, an association between men's attractiveness ratings of the women's scent and the women's facial attractiveness. Symmetry has been suggested as indicative of good health, genetic quality, developmental stability and has been associated with psychometric intelligence (e.g. Jones, Little, Penton-Voak, Tiddeman, Burt and Perrett, 2001; Furlow, Armijo-Prewitt, Gangestad and Thornhill, 1997) and is thus a cue for a "good" sexual partner. Gangestad and Thornhill argued that the signals of facial attractiveness and scent might play a similar role in partner selection. Scholey, Bosworth and Dimitrakaki (in press) report similar findings and conclude that pheromones may play a part in "the sensory factors which determine physical and sexual attractiveness in

humans".

Cowley, Johnson and Brooksbank (1977) report that exposure to auxiliary and vaginal extracts resulted in an increase of male ratings of positive characteristics of fictional job applicants. Similarly, Grammer and Jutte (1997) found that men responded sexually to copulins (female pheromones) that are found in vaginal secretions. Kirk-Smith, Booth, Carroll and Davis (1978) report an association (irrespective of the gender of the rater) between androstenol exposure and elevated ratings of females' sexiness, attractiveness and warmness. This evidence suggests that humans unconsciously use olfactory cues (such as pheromones) in selecting a mate, in conjunction with visual signals. If this is true, then visually impaired people will also be able to gather information about a prospective mate in exactly the same fashion.

Auditory Information.

Hearing is another medium through which information about a person may be gathered. First, there is the simple act of receiving information about a prospective partner from a third party by word-of-mouth (as discussed in the next section). Much information about a person can be obtained simply by directly talking with them. There is however more subtle information that may be obtained aurally. Because the voice changes over time, dropping in pitch during and after puberty and rising again as old age is reached, it may provide information on the speaker's likely age. It may also be possible that the voice gives clues to the person's socio-economic status, education, wealth and other cues to potential resource acquisition.

Accents give immediate cues about where a person comes from (Stevens, 2004). Dialects are not restricted to humans: crows in Eastern Europe seem to "caw" noticeably differently from those in Western Europe and Japanese macaques in the northern part of their range "coo" in a different way from those in the south (Dunbar 1997). Different populations of whales have also been found to have different "languages"; humpback whales (*Megaptera novaeangliae*) off the west coast of Australia have identifiably different songs from those found near the east coast and have been found to change their song from time to time (Noad, Cato, Bryden, Jenner and Jenner, 2000). Differences in the songs among members of the same bird species has also been identified by Workman (1993). He demonstrated that European robins living in Sussex have a different "accent" than European robins living in south Wales. He argued that this might be a mechanism for recognising individuals who are native to a particular area and thus are able to survive the local climate and locate food supplies.

Dunbar (1997) proposed that different dialects and languages in humans evolved was a badge of group identity. He claimed that it is widely recognized that dialects are related to local sub-cultures: they are a sign that the speaker 'belongs'. His argument is that language and dialects can be used to identify others from a particular group (or even family) and thus can be used to select an appropriate partner. Doty (1998, p.202) reported "People can recognize the voices of their own country with greater accuracy than those of other countries".

Wiemann and Giles (1988?) present evidence for the relevance of speech styles to interpersonal perception and impression management. They claim that factors such as the diversity of vocabulary used, the rate of speech and the accent can have an effect on a person's perceived control of other people. For example, it has been shown that, even from an early age, a "standard" accent gives the impression of high status and competence and elicits greater co-operation from others. A speaker with a standard accent also elicits a more favourable reaction in job interviews for high-status occupations than does a speaker with a non-standard accent. Especially among children, there is a similar effect of speaker's accent on perceived educational potential. Wiemann and Giles (1988) point out the power of vocal features - even if factors such as the speakers' socioeconomic backgrounds, visual cues and quality of achievements are taken into consideration. Accents clearly influence judgements about individuals and may give clues to socioeconomic status and educational potential; cues that are related to an individual's ability to provide resources.

Voice (in terms of accent, language spoken or qualities of the voice such as pitch) may be one way in which a visually impaired person can identify a prospective partner. Although it would seem reasonable to assume that a VI person would be proficient at using language cues to identify others, Elaad, Segev and Tobin (1988) found no difference between blind and sighted groups in accurately identifying voices in a mock theft scenario. No studies have examined whether VIP are better at inferring target's attributes (for example, age and attractiveness) from voice cues.

*The Role of Language and Gossip.

Third parties are a rich source of information of details about a potential partner even before a meeting with that person has taken place. Language enables humans to interact with each other and provides a "unique window into each other's minds" (Miller 1998). It also permits gossip. Kenrick and Trost (1987) agree that for humans, any assessment of a potential partner can be initiated before actually meeting them through "reputation and/or observation" (p69). Murstein (1983) went further with the role of reputation when he proposed his three-stage theory of marital choice, claiming that it could be used to inform a person's selection of a partner. He suggested that "initial impressions are not wholly dependent on the senses... An individual's stimulus value may also include information about his reputation or professional aspi rations..." (p.192). Thus, in Murstein's idea, a person uses information about a prospective partner that could be gathered from a third party (such as reputation).

According to Buss and Schmitt (1993), one of three sources of information about a prospective mate's reproductive value and fertility available to our ancestors was "knowledge gleaned from others about a person's age and prior health". Thus one way of gathering information about a person (in order to make a mate selection) would be to talk to third parties about her or him. In this way, features that a potential person would rather keep hidden can be uncovered or desirable qualities could be discovered or confirmed. Dunbar (1997) adds weight to this idea. He proposed that gossip evolved as a way in which to monitor relationships in a group that has become too large to rely on grooming for the purpose (as is the case inw other primates). He argues that gossip

furnishes information about a prospective partner: "We can find out a great deal about a person with whom we might be thinking of forming a relationship or an alliance." (Dunbar 1997, p148).

Miller and Todd (1988) note that information in the form of gossip can be gathered from kin, friends and other group members and that parents (who have demonstrated their success at raising offspring and who have an interest in helping to raise grand-offspring) seem to warrant special attention. Family members may also apply pressure on to an individual to try to persuade them to conform to social norms (e.g. social "rules" about what age, race, religion, etc. is acceptable for a partner). Peers and friends may also be influential in the selection process. Thus, as impressions are shared and discussed, other people are not only a source of information about potential partners but they also help to form opinions about them.

Miller and Todd's (1988) idea of sexual gossip allows the integration of diverse information that can be gleaned from sexual cues, traits and other qualities of a prospective partner. Proveda (1975) argues that gossip is useful for assessing certain traits (such as sexual behaviour) which otherwise would be hard to judge since they are non-public and would need a higher level of intimacy before information about them could be gathered. Buss and Schmitt (1993) claim that, because fidelity is so central to a male's choice of a long-term mate, a woman's reputation for promiscuous sexual relationships may damage her chances of obtaining a long-term partner. In the same way, since resource acquisition is central to a woman's choice of a long-term partner, a man

who acquires a reputation for being a womanizer may seem less attractive than a man who was willing to commit his resources to one woman. On the other hand, a man seeking a short-term relationship might value the information that a particular woman was more ready to accept such a relationship. Similarly, a woman pursuing a short-term strategy might be more interested in a man who has a reputation for being promiscuous - a man whom other women have already chosen.

There is another role that can be played by third parties. Berk (1977) found that males augmented their appeal to females by acting 'cool', professing that they had a high status job and claiming that they led an exciting life. As part of this self-presentation, it was an advantage for them to be able to rely on a third party who could verify their claims. This added credibility to the man's identity and promoted trust by the woman. The fact that third parties can be used to corroborate identity claims can also be seen in the findings of Hirsch and Paul (1996). These authors proposed that for a long-term strategist, a successful tactic is for the couple to interact with one another's families and friends. This allows "...validation of quality and intention." (Hirsch & Paul 1996, p.56). On the other hand, a man seeking a short-term mateship should attempt to isolate the potential mate from his friends and family to ensure that she cannot discover information that might alert her to his likely abandonment. Without third party verification, it is more difficult to detect lies.

Miller (1997, p.74) notes that it is an irony of evolutionary psychology that much of the research in partner preferences concentrates on sexual cues that are the <u>least</u>

psychological (e.g. "faces, breasts, buttocks, muscles, penises, symmetry, height and other morphological traits..."). Psychological characteristics of potential partners (e.g. "...intelligence, creativity, personality, sense of humour, social skills, kindness and ideology...") have received far less attention. Behavioural and psychological characteristics can be reliable cues to desirable qualities. They can reveal much about a person that she or he would prefer to keep hidden, exposing some of the less desirable qualities that might deter a possible mate. It is difficult for most people (except, perhaps, for professional actors) to behave in a way that is not natural to them without betraying its falseness and it especially difficult to sustain such a deception over a long time period.

It is possible for behavioural and psychological cues to be used by visually impaired people as indications of the quality of a potential partner. Information of this sort can be gathered by simply being with another person and "observing" how they behave (it is not necessary to see what a person is doing in order to actually know what they are doing. Talking to a person may also reveal clues to that person's values, social skills, intelligence and other personality traits. Added to this, information can also be gathered from other people. For example, Walster et al.'s (1984) findings that men prefer women who "play hard to get" with other men (but only with other men) relies on the fact that men have some way of discovering how easy others find it to form a relationship with the woman. Thus, by talking to other people and by being aware of the behaviour of potential partners, it is possible for visually impaired people to use behavioural and psychological cues in partner selection.

Summary.

*This thesis seeks to investigate the importance and priority of visual cues along with the role of cues indicating alliance qualities and whether or not these qualities are indicated visually or non-visually. In particular, the relative importance of both of these in long-term relationships is examined. In order to do this, firstly it is necessary to isolate any signals that may be detected non-visually from those of a more visual nature. One obvious way of doing this is to use visually impaired people as participants.

The literature suggests that there are non-visual cues to partner qualities. Firstly, other people's opinions will give some idea as to what a potential partner is like, and others may perform introductions - especially those who think of themselves as matchmakers. Secondly, a person's voice may convey details such as a speaker's gender, body size, age and socio-economic status and/or education. Thirdly it is also possible that pheromones are employed to attract others or that body scent communicates information about that person in terms of her or his body symmetry, facial attractiveness, etc.

If there are non visual cues that are used in mate selection, complementing the more obvious visual signals, then visually impaired people can use them in their choices of partners (both short- and long-term). The study that now follows looks at the preferences expressed by visually impaired people and compares them with preferences of sighted individuals. This should shed light on whether VIP look for the same traits in a prospective partner (and thus are able to make judgements based on non visual cues) or if they assess mates on different traits (presumably because there are no alternatives to the

usual visual signals which are not available to them).

CHAPTER THREE.

BLIND ORDER:

COMPARING RATINGS OF MATE PREFERENCES GIVEN BY VISUALLY IMPAIRED AND SIGHTED PARTICIPANTS (STUDY 1)

In the same way that a layperson who is sighted and unconnected with visual impairment seems to assume that the visually impaired compensate for their impairment by extra-sensitive hearing, there is also a common conception that visually impaired people do not care how their partner looks. If they cannot see their partner, what does it matter how attractive or unattractive they are? It is often assumed that a VI person is more interested in the personality and character of their partner.

However, evolutionary psychology proposes that humans have inherited a set of preferences for mates. If such preferences are genetically transmitted adaptations then they should be present in visually impaired people also. Because visual impairment is generally not a heritable trait but a random genetic or environmental event, VIPs will not have been able to co-evolve any special compensatory processes for detecting cues that are normally assessed visually. If this is so, then VI P will prefer high quality mates, where the quality criteria are identical to those of a sighted population, but they may have to develop non-visual means of establishing a potential mate's quality.

Some characteristics (for example, good parenting skills or intelligence) are available from non-visual cues and as such are capable of being detected by VIP. Physical attractiveness is not however an accessible trait for VIP, as it is for sighted people. Assuming that physical attractiveness is an important cue for males in general, then it should be equally important to VI males. Absence of access to visual information on physical attractiveness would seem to put a VI man at an immediate disadvantage, compared to his sighted contemporaries. Even if nonvisual cues do not fulfil the same role as visual signals, visually impaired people should still express the same preferences for traits in potential mates as sighted people do. That is, since mate preferences are evolved strategies to maximize reproductive success, they should be universal across the species. Thus visual impairment (or any other disability) should make no difference to her or his preferences in characteristics demonstrated by mates.

It has been hypothesized, however, that there will be a difference between the preferences for traits in a potential mate expressed by females and males (e.g. Buss and Schmitt, 1993). This is due to the different evolutionary pressures that our ancestors experienced in human evolutionary past. This has been discussed in Chapter One, but the issue can be summarized as follows. Women's minimum investment in children is much higher than men's (they must carry the developing foetus for nine months, providing nutrition and protection and then breast feed the baby for some time after birth). Women therefore should prefer traits in a prospective long-term partner that indicate an ability and willingness to invest resources in her and her children. On the other hand, since fertilization is internal, a man cannot be as certain as a woman that any child is his; thus men should prefer women demonstrating traits indicative of chastity and honesty. Also, in order to maximize his reproductive

potential, a man should prefer potential partners who exhibit traits synonymous with youth and fertility. There have been a number of studies, which support this hypothesis (e.g. Buss and Schmitt, 1993; see below for more examples of such studies).

The study reported in this chapter, therefore, first seeks to determine whether in fact there is any significant difference between what VI and sighted people regard as important characteristics in a partner; and secondly whether the results conform with other researchers' findings in regards to differences between female and male preferences. In order to do this, part of the study completed by Buss (1989) on thirty-seven cultural samples from around the world was replicated on both female and male participants taken from VI and sighted samples.

Buss's (1989) study.

Using Darwin's (1871) theory of sexual selection and Trivers' (1972) observations on differential parental investment by males and females, Buss generated four hypotheses about the qualities that each sex would prefer in a partner, which he then tested in a large cross-cultural sample. These hypotheses were: (1) women, more than men, will prefer mates displaying cues indicative of greater control over resources (such as higher earning capacity) or the likely acquisition of resources (such as ambition and industriousness); (2) men will value physical attraction in women more than women will in men; (3) men will value relative youthfulness in their mates more than women will; and (4) men will value chastity in their mates more than women will.

Analysing his results, Buss found support for his evolutionary-based hypotheses; women were found to value cues to resourcefulness in potential mates more than men and men were found to value signals indicating a potential mate's reproductive value more than women. When these results were first published, they were considered by many as a breakthrough in the investigation of human mating behaviour. At the time, little cross-cultural work had been completed into traits preferred by people in selecting a partner. Buss claimed that contemporary choices and preferences of partner characteristics would reflect and provide important clues to human reproductive history. He therefore examined the mate preferences of humans from thirty-three countries, located on six continents and five islands: covering a wide range of socio-economic conditions, political ideals and religious persuasions. Such a large cross-cultural study (total number of participants was over ten thousand) lent much support to his evolutionary-based hypotheses for human reproductive behaviour. Buss claims that the study was the first to investigate human mate preferences and exceeded any prior studies "in geographic, cultural, political, economic, ethnic, religious and racial diversity." (p.13).

For each sample group, Buss asked three sets of questions. Firstly he obtained data on age, sex and number of siblings, socioeconomic status and other background information. Secondly he asked participants to rate a series of characteristics as to their importance in a potential partner. Thirdly, he asked them to rank a similar but different set of traits into their order of importance in a potential partner. In this study it is the second part of Buss's (1989) investigation that was of interest.

Although his cross-cultural investigation was a remarkable achievement for evolutionary explanations of human mate selection, it was not without its critics. There have been a number of criticisms about the study, arguing against both the theory and methodology of Buss's work. For example, a number of objections concerned his sampling procedure. Borgia (1989) pointed out that Buss's experimental population was biased. Of all the thirty-seven samples he analysed, twenty-seven were either from Europe or were heavily influenced by Europe (for example, the Australian and New Zealand samples). There were few aboriginal samples: the vast majority of the participants were drawn from industrialized urban areas, which had gone through the "demographic transition" (a change in central reproductive characteristics) and therefore a change from evolutionary reproductive practices. This point was made also by Smuts (1989) who also claimed that rural, uneducated and poor people were under-represented in Buss's sample. She suggested, therefore, that Buss' results were not evidence of universal mate preferences, but rather were due to the homogeneity of his participants.

Buss acknowledged that his samples were biased towards western and western-influenced societies. In order to identify whether this had altered the results in any way, he contrasted what he considered to be the non-western samples (Nigeria, South African Zulu, Zambia, China, India, Indonesia, Iran and Palestinian Arab) with his Western samples. He found that there were no significant differences between the two groups with regard to sex differences in preferences, except on chastity and preferred relative age difference between self and mate. In the case of chastity, seventy-five percent of the non-western samples displayed evidence of sex differences in the predicted direction, whereas in the western samples, slightly less than fifty percent showed a similar sex

difference. In the case of preferred age difference, Buss reported that males in non-western cultures preferred their mates to be on average 4.10 years younger, whereas in western cultures males preferred their mates to be only 2.22 years younger. Buss thus claimed that any sampling biases that existed in his study not only failed to contradict his conclusions but actually seemed to support his theory of reproductive value and chastity and to make little or no difference with respect to the other three hypotheses.

Concerns also centred on the analysis of the data. For example, Caporael (1989) and Hartung (1989) questioned the use of multiple t-tests. They claimed that the homogeneity of variance assumption was violated and that by using multiple significance tests on the same data, Buss capitalised on chance effects. Buss responded to these criticisms by referring to the appropriate use of significance tests. He also conducted a further analysis of the data, the results of which supported his use of multiple t-tests. In the current study, the data were examined by a two (sex) by two (sight condition) by eighteen (traits) analysis of variance, before any further examination of the individual traits took place (see Method section below).

Hartung (1989) also claimed that Buss's conclusions did not actually fit his findings. He pointed out that the data for three of the crucial elements were less convincing than Buss claimed. For chastity, twenty-five out of thirty-seven t-tests were non-significant at the corrected alpha level (with five being in the wrong direction) and ambition and industriousness showed twenty-one non-significant results (three being in the wrong direction). Hartung also claimed that the data for good looks did not fare much better. Supporting this argument, Thornhill (1989) claimed that in thirty-eight percent of Buss's sample no sex difference in the value placed on chastity was found.

One reason for Buss's findings being suspect is given by Russell and Bartrip (1989). They claimed that the data relies on the responses to questions about what people want, rather than observing what people actually do. Zohar and Guttman (1989) make a similar point. They claimed that asking about idealised preferences is not studying actual mate selection criteria (see also Perusse, 1994). It could be that the person was expressing an ideal partner that they had no serious thoughts of obtaining, or that they were simply saying what they believed the investigator wanted to hear (both of these could be done either consciously or unconsciously).

Many of those who have criticized Buss, have argued that the study has ignored the factor of context altogether (Ridley 1994). They claim that Buss has ignored the fact that in different cultures and at different times, different criteria for mate selection will develop. Buss responds that although different cultures will develop different mate preferences to each other, there will still be the same differences between women and men. Buss claims that such a "cultural norm" theory would outline no specific feature of differing cultures that could really explain the results of this study. Thus it is not clear what data could be gathered to support or falsify it. Further, Buss stated that "cultural hypotheses" did not answer a fundamental question. That is, where did the economic inequality between males and females found throughout human societies originate? Buss claimed that his evolution-based explanation provided one potential answer. This is that members of one sex competing with one another for members of the opposite sex will display characteristics sought in mates by those they are competing for. Thus, if the characteristic preferred by females throughout human evolution is willingness and ability

to invest resources, then it should be expected that males rather than females would have been selected for displays of conspicuous resource control.

There have been many studies since Buss' article, which have supported his conclusions (see Buss and Schmitt 1993). Beyond questionnaire studies, there have been a number of investigations that have analysed "real-life" dating situations in order to look at preferences as they are expressed in genuine situations. Such studies have supported Buss's theory. For example, Perusse (1994) asked a representative sample of 1133 individuals about real-life relationships. He found that the social status of males is important in the mate selection by females; men, but not women, of higher social status were found to acquire more mating partners. Female age, and thus their reproductive value/capacity, is important in male selection: women's, but not men's, number of partners was found to decrease linearly with age. Female sexual exclusivity is considered important in male selection by males; and women, but not men, were reported to display a significant relationship between promiscuity and marital dissolution.

Other authors have undertaken investigations of "lonely hearts advertisements". There is, of necessity, a western sample bias in such studies. The adverts are principally from North America and East and Western Europe since traditional societies rarely have access to the appropriate forms of media that would allow the use of personal advertisements. Such adverts are useful for examining mating strategies, allowing an examination of both expressed preferences and offered traits. Comparing the preferred traits requested in personal ads with those reported by Buss provides a validity check on Buss' conclusions. Most of the investigations based on

personal ads support Buss's theories (e.g. Waynforth and Dunbar, 1995). In particular, men were more likely to mention specific physical characteristics, offer financial security and seek attractive and younger partners, while women were more likely to offer attractiveness and seek financial security and older partners. A typical finding comes from Pillowslip and Dunbar (1999a; b). They discovered that the value of women in the reproductive market was determined principally by their fecundity and, to a lesser extent, their reproductive value. Male market value is determined by their earning potential and the risk that they would either die or divorce during the next twenty years.

Baize and Schroeder (1995) found that the relationship between self-descriptions and the number of responses received followed the predictions of evolutionary psychology. Age was positively related to the number of responses to men's advertisements and negatively related to the number of responses to women's. Men's income and education were positively correlated with number of responses but this was not true for women. Indications of attractiveness were positively related to numbers of responses for both sexes, but significantly more so for women.

Bereczke, Voros, Gal and Bernath (1997) sampled 1000 personal ads in Hungary. Their analysis also revealed that women, more than men, look for economic resources but they also discovered that females who offered cues to physical attractiveness made higher demands than those that did not. Males, on the other hand, increased their demands for physical attractiveness as they increased their claims for economic resources. In their study, women seemed to value cues to family commitment over

cues to resources, a fact they explained as a facultative solution to the local cultural and economic situation.

Further support for Buss's theory has also been found in a number of large-scale studies. For example, Sprecher, Sullivan and Hatfield (1994) used data collected from a sub-sample of the National Survey of Families and Households, totalling 1329 individuals. Their results supported Buss's findings: youth and physical attractiveness were preferred by males more than females while earning potential was seen as more important by females than by males. These findings were consistent over racial and age groups, although there was some variability over socioeconomic classes.

Despite criticisms of both Buss's methodology and theory, a large number of studies have replicated his findings. It was therefore felt that it was viable to use his methods for this current study. The replication of Buss's methods allows the comparison of data found in this study with a large-scale base line of already established data.

Hypotheses.

Evolutionary psychology states that humans have inherited a set of evolved mate preferences that, during evolution, increased the inclusive fitness of their bearers. Because they have the status of adaptations, these preferences are expected to be universal in humans, including those who are visually impaired. In this study, therefore, it is hypothesized that visually impaired people will express the same rating scores for the characteristics presented to them, as will sighted people. It is expected, however, that there will be a difference in the preferences expressed by females and

males. Following Buss (1989) it is expected that women will rate earning potential and social status more highly than men and men will rate physical attractiveness, chastity and youth more highly than women.

Method.

Participants.

One hundred and four participants took part in this study: fifty were visually impaired (twenty-nine females and twenty-one males) and fifty-four were sighted (twenty-two females and thirty-two males). The visually impaired participants were drawn from two residential colleges for the visually impaired in the West Midlands (Royal National College in Hereford and the R.N.I.B. New College, Worcester). The sighted participants were students at a summer school for school leavers thinking of attending university and their family and friends (see procedure below). All participants were aged between sixteen- and twenty-four-years-old. All had English as their first language and were naive as to the research topic.

Procedure.

Each VI participant was interviewed individually. They were told that the study was examining preferences for romantic partners. The age and sex of the participant was recorded and the rating scale explained to them. They were asked to think of an ideal long-term partner. The list of characteristics was then read out to them, one at a time. The participants rated how desirable each characteristic would be in an ideal partner, the next trait not being read out until the previous one had been given a score.

The sighted participants were prospective higher education students, visiting the University of Durham on a three-day summer school designed to give them an

experience of university life. The students were tested in a group situation. Participants were asked to rate how important a list of characteristics were in a potential long-term partner and were then given copies of a printed sheet. The sheet asked the participant's age and sex, then listed the eighteen characteristics together with a rating scale for each characteristic. After completing and returning the sheet, they were given additional copies and asked to request family and/or friends to complete them provided they were aged between 16 and 24 years old. All the completed sheets were handed back by the students at the end of the three-day visit.

The instrument

The eighteen characteristics used in the present study were taken without alteration from Buss's (1989) study. They were: "good cook and housekeeper", "pleasing disposition", "sociability", "similar educational background", "refinement, neatness", "good financial prospects", "chastity (no previous experience in sexual intercourse)", "dependable character", "emotional stability and maturity", "desire for home and children", "favourable social status or rating", "good looks", "similar religious background", "ambition and industriousness", "similar political background", "mutual attraction and love", "good health" and "education and intelligence". The rating scale was also taken from the Buss (1989) study without alteration. It was a four-point scale, ranging from zero (irrelevant or unimportant), through one (desired but not terribly important), two (very highly desired) and three (indispensable or extremely important).

Results.

The analysis aimed to examine the impact of sex, sightedness and their interaction on trait ratings. Since Buss was criticized for using too many t-tests on his data and thus capitalising on chance relationships, it was decided to subject the data to a two (sex) by two (sight condition) by eighteen (traits) analysis of variance, before proceeding to examine the individual traits. A mixed design was used with sex and sight condition as between groups fixed factors and traits as a within groups repeated measure. Geisser-Greenhouse corrections were used where lack of homogeneity was indicated.

A main effect of sex was found ($F_{(1,100)}=6.65$, $p< .05$) with males having a higher mean (1.67,S.E.= .054) than females 1.47. S.E.= .054). A main effect of sight condition was also found ($F_{(1,100)}=25.08$, $p< .001$) in which the visually impaired participants had a higher mean (1.76, S.E.= .055) than the sighted participants (1.38, S.E.= .053).. A main effect of traits was also found ($F_{(12.55, 1254.992)}=67.65$, $p< .001$).

Since there was a main effect of traits, post-hoc tests were carried out, the results of which are presented in Table 3.1. From these results it can be seen that "mutual attraction and love" was clearly rated as being the most important trait in a potential partner. Following this trait, "emotional stability and maturity" and "sociability" were ranked as being equally important. It is interesting that "mutual attraction and love" was rated as the most important which replicates Buss (1989), indicating that the participants preferred a partner who reciprocated their feelings. This suggests that people place a high value on partners who are likely to stay in a relationship and not leave. The fact that personality traits such as "pleasing disposition" and "dependable character" were rated as more important as "good looks" in a partner, suggests that

the participants thought of their ideal partners as having particular personality traits, as well as particular physical features. This suggestion is examined further in the following chapters.

Table 3.1: Mean Scores Attributed to Traits by All Participants with Post-Hoc Test Results.

Trait Number	Trait name	Mean	Standard error	Bonferroni difference p< .001. This trait significantly higher than…
16	Mutual attraction, love	2.687	.061	Emotional stability (9) and below
9	Emotional stability	2.342	.061	Education and intelligence (18) and below
3	Sociability	2.300	.063	Education and intelligence (18) and below
8	Dependable character	2.297	.079	Ambition and industriousness (14) and below
2	Pleasing disposition	2.044	.083	Good looks (12) and below
18	Education and intelligence	1.823	.087	Good cook and housekeeper (1) and below
17	Good health	1.775	.083	Good cook and housekeeper (1) and below
14	Ambition and industriousness	1.701	.076	Good cook and housekeeper (1) and below
5	Refinement, neatness	1.637	.083	Good cook and housekeeper (1) and below
10	Desire for home and children	1.534	.107	Similar educational background (13) and below
12	Good looks	1.407	.087	Similar educational background (13) and below
6	Good financial prospects	1.334	.080	Chastity (7) and below
1	Good cook and housekeeper	1.219	.070	Chastity (7) and below
11	Favorable social status	1.096	.080	Similar political background (15)
4	Similar educational background	.979	.083	---
13	Similar religious background	.817	.105	---
7	Chastity	.663	.094	---
15	Similar political background	.576	.075	---

Although a significant interaction was found between traits and sightedness ($F_{(12.55, 1254.992)}$ =3.23, p< .05), no significant interaction effect was found between traits and sex ($F_{(12.55, 1254.992)}$=1.44, n.s.) Nor was a three-way interaction between trait, sex and sight condition found ($F_{(12.55, 1254.99)}$ = 1.32, n.s.).

To examine the interaction of sightedness and traits, a one-way between group (VIP/sighted) analysis of variance was performed on each trait. Table 3.2 presents the results of this analysis. Fourteen of the 18 traits showed a significant difference. In each case it was the VI participants who gave higher ratings than the sighted participants. The fourteen traits were: "favourable social status" ($F_{(1,102)}$ =21.65, p< .001); "education and intelligence" ($F_{(1,102)}$=16.81, p<.001); "pleasing disposition" ($F_{(1,102)}$=14.53, p<.001); "ambition and industriousness" ($F_{(1,102)}$=15.75, p<.001); "good financial prospects" ($F_{(1,102)}$=11.54 p<.001); "similar educational background" ($F_{(1,102)}$=11.30 p<.001); "refinement, neatness" (F(1,102)=11.38 p<.001); "good cook and housekeeper" ($F_{(1,102)}$=15.15 p<.001); "desire for home and children" ($F_{(1,102)}$=5.94 p<.05); "similar religious background" ($F_{(1,102)}$=6.00 p<.05); "good health" ($F_{(1,102)}$=8.77 p<.01); "similar political background" ($F_{(1,102)}$=9.53 p<.01); "chastity" ($F_{(1,102)}$=5.08 p<.05); and "sociability" ($F_{(1,102)}$=5.08 p<.01).. Four traits did not significantly differ between VI and sighted participants: "dependable character", "good looks", "mutual attraction and love" and "emotional stability and maturity".

*The mean ratings of the VI and sighted participants were placed.in rank order for comparison (see Table 3.3). A Spearman's correlation was performed on this data the results of which showed a very high level of similarity (r = 0.920, p< .001). In fact, the chief trait, on which the two groups differed in importance, was "good looks".

When the results of the ANOVA analysis are combined with the findings from the Spearman's correlational test, there seems to be a contradiction. At first glance, the Spearman's correlation shows that the importance given to the traits by the two sight condition groups differed very little with the exception of "good looks". The ANOVA, on the other hand, shows that there are differences between how sighted and VI people rate the importance of the different traits. A closer examination of the results of these analyses, however, affords an interpretation of the data. To be specific, it appears that the VI sample rated almost all the traits as being more important than the sighted sample. The only three traits that the sighted sample rated higher than the VI participants were "good looks", "mutual attraction and love" and "dependable character"; however none of these were significant. The chief difference in the Spearman's rank correlation test, which prevented a perfect match, was that the sighted population rated "good looks" higher than the VI population. Thus it would seem that although the VI participants rated the traits generally higher in importance than the sighted participants (except for the two noted above), the sighted participants considered "good looks" to be more important in a potential partner than did the VIP. Although the difference was non-significant, it was in the hypothesized direction. VIP do not seem to hold physical attractiveness as being so important in a potential partner as do sighted people.

Table 3.2: Means and standard errors for VI and sighted participants on the 18 traits

	Sighted		VIP		
Trait	Mean	Standard error	Mean	Standard error	F value
1. Good cook & housekeeper	.963	.096	1.500	.099	15.146***
2. Pleasing disposition	1.741	.113	2.360	.117	14.530***
3. Sociability	2.093	.086	2.480	.090	9.690**
4. Similar educational background	.722	.115	1.280	.120	11.299***
5. Refinement, neatness	1.376	.115	1.898	.119	11.384***
6. Good financial prospects	1.104	.111	1.565	.115	11.544***
7. Chastity	.476	.130	.851	.135	5.077*
8. Emotional stability	2.249	.110	2.346	.114	0.915
9. Dependable character	2.345	.084	2.339	.087	0.003
10. Desire for home & children	1.311	.149	1.758	.154	5.937*
11. Favourable social status	.746	.111	1.447	.115	21.648***
12. Good looks	1.533	.121	1.281	.125	2.597
13. Similar religious background	.584	.146	1.049	.151	6.004*
14. Ambition & industriousness	1.408	.106	1.993	.110	15.751***
15. Similar political background	.355	.105	.796	.108	9.526**
16. Mutual attraction, love	2.737	.085	2.637	.088	0.467
17. Good health	1.545	.116	2.004	.120	8.773**
18. Education & intelligence	1.484	.121	2.162	.125	16.810***

* $p<.05$
** $p<.01$
*** $p<.001$

It was most surprising that no significant interaction was found between sex and trait, contrary to the literature described earlier. (Nor was there a 3-way interaction indicating that the sex difference was 'hidden' by sighted versus VIP condition). Because Buss analysed his data on a trait-by-trait basis, rather than considering the effect of sex over all trait ratings simultaneously, it is unclear whether he might similarly have found no overall interaction. Reciprocally, in the present data, a predictable set of individual trait results might be obscured by the overall analysis. It

was of interest to examine the data more closely. As with sightedness, a series of one-way analyses of variance was performed, looking for sex differences in the importance given to each characteristic. Table 3.4 gives the results of the analysis.

Table 3.3: Relative Order of Means for Characteristics Rated by Visually Impaired and Sighted Participants.

Trait	Sighted	VIP
Mutual attraction, Love	1	1
Dependable Character	2	5
Emotional stability & maturity	3	4
Sociability	4	2
Pleasing disposition	5	3
Good health	6	7
Good looks	7	14
Education & intelligence	8	6
Ambition & industriousness	9	8
Refinement, neatness	10	9
Desire for home & children	11	10
Good financial prospects	12	11
Good cook & housekeeper	13	12
Favourable social status	14	13
Similar educational background	15	15
Similar religious background	16	16
Chastity	17	17
Similar political background	18	18

From this analysis it can be seen that two of the expected sex differences reported by Buss (1989) are also present in the current study. "Good financial prospects" ($F = 24.16$ $p < .001$) and "favourable social status" ($F = 4.17$ $p < .044$) were held to be more important to female than male participants. Other significant differences were also found: "similar educational background" ($F = 4.56$ $p < .035$), “dependable character” ($F = 4.49$ $p < .036$) and “desire for home and children” ($F = 5.47$ $p < .021$) were all rated by females as being more important in a prospective romantic partner than they were by males.

Table 3.4: Mean Rating Scores of Female and Male Participants.

	Females		Males		
Trait	Mean Score	Standard error	Mean Score	Standard error	F value
Good cook and housekeeper	1.33	.096	1.13	.110	2.26
Pleasing disposition	2.16	.123	1.93	.120	1.82
Sociability	2.53	.092	2.21	.091	1.26
Similar educational background	1.77	.130	0.81	.130	4.56*
Refinement, neatness	1.77	.121	1.51	.120	2.26
Good financial prospects	1.75	.115	0.94	.116	24.16***
Chastity	0.82	.150	0.51	.113	2.82
Dependable character	2.43	.098	2.09	.124	4.49*
Emotional stability and maturity	2.37	.074	2.30	.092	0.36
Desire for home and children	1.77	.150	1.26	.153	5.47*
Favourable social status or rating	1.28	.122	0.93	.120	4.17*
Good looks	1.33	.127	1.51	.116	1.05
Similar religious background	0.98	.157	0.66	.140	2.32
Ambition and industriousness	1.77	.114	1.62	.112	0.79
Similar political background	0.73	.122	0.47	.099	2.61
Mutual attraction, love	2.73	.080	2.64	.090	0.49
Good health	1.88	.130	1.66	.108	1.74
Education and intelligence	1.94	.138	1.70	.119	1.78

Three sex differences replicating Buss were found although these were not significant: "good looks" ($F = 1.05$, $p < .309$) was rated as more important by males and the traits "ambition and industriousness" ($F = 0.79$, $p < .376$) and "education and intelligence" ($F = 1.78$, $p < .185$) were both more important to females than males. However, the trait "chastity (no previous sexual experience)" was found to be more

important to females than males, although not significantly so ($F = 2.82$, $p < .100$), a result that is directly opposed to the findings reported by Buss (1989).

Table 3.5: Relative Order of Means for Characteristics Rated by Female and Male Participants.

Trait	Female	Male
Mutual attraction, love	1	1
Emotional stability and maturity	2	4
Sociability	3	2
Dependable character	4	3
Pleasing disposition	5	5
Education and intelligence	6	6
Good health	7	7
Ambition and industriousness	8	9.5
Good looks	9.5	14
Refinement, neatness	9.5	9.5
Desire for home and children	11	9.5
Good cook and housekeeper	12	13
Good financial prospects	13	12
Favourable social status	14	15
Similar educational background	15	9.5
Similar religious background	16	16
Chastity	17	17
Similar political background	18	18

*Table 3.5 shows the relative order in which the mean rating scores given to the characteristics by female and male participants fell. It seems that both sexes give a similar importance to the same traits. The Spearman's correlation between the two sexes was $r = 0.917$ ($p < .001$). This shows that there was little difference between the ratings given by the two sexes, with a few exceptions. Two of the characteristics that Buss (1989) found females rated higher than his males, were found to show similar sex differences in the current study as well. That is to say, the traits of "good financial prospects" and "favourable social status" were rated as more important by females than they were by males, as they were by Buss in his cross-cultural study.

Other findings from this study were dissimilar to those reported by Buss (1989): the trait "ambition and industriousness" was rated more highly by males, the trait "chastity" was rated as being more important by females and "good looks" was rated equally by males and females. These results are contrary to the theory proposed by Buss in his cross-cultural study; "ambition and industriousness" was found by Buss to be more highly sort after by females and "good looks" and "chastity" were found to be more important to males. Why there should be such a mixed set of findings (both agreeing with and contradicting Buss) is unclear. The methods used in this study were the same as used by Buss (1989) and so there should have been no confounding variables derived from how the investigation was carried out. One possible explanation may be found in that the sample population in the current study contained a relatively high proportion of visually impaired people. "Good looks" were thus given a similar rating by men and women because the visually impaired cannot judge how physically attractive a person is and thus v.i. men use other factors to help select a partner. "ambition and industriousness" is a personality trait (as opposed to a physical one) and thus is more important to v.i. males than to a sighted man. This hypothesis does not, however, explain why "chastity" should not a sex difference.

Discussion.

This study has resulted in a number of findings. Firstly that VIP and sighted people broadly express the same preferences in potential partners. This can be seen as support for the notion of universal human mate preferences. Although there was a significant interaction between sightedness and traits, closer inspection revealed that this was attributable to the tendency of VIP to rate most traits higher. The statistical significance was due to just four traits on which the usual significant elevation of

scores among VIP was not found. On three of these four traits, sighted participants' scores exceeded those of VIP, although not significantly. It is interesting, however, that the sighted participants seemed to consider good looks as being more important than the VI participants did. In fact, the only trait that was rated dramatically different by visually impaired and sighted participants was "good looks" (placed thirteenth by the VI group as opposed to fifth by the sighted group).

Another finding - that of the greater overall choosiness of VIP (reflected in the main effect of this factor) may be due to the fact that VIP (and possibly other disabled people) are trying to ensure that they are not being exploited by a prospective partner. It may be that they are compensating for the lack of ability to make checks on a prospective partner (e.g. being unable to verify visual cues, possibly being without social networks to gather "gossip, etc.). This could be the basis of a future study.

A more surprising finding is that over all the participants, men expressed higher mean scores than did women. Evolutionary theory predicts that women (being the more highly investing sex) will be more selective in their partner than will men; men compete with other men for the attention of women and it is the women who will have higher standards for their partners. When carrying out this investigation, however, participants were asked to think of an ideal long-term partner when scoring the characteristics. Human males make a substantial investment in offspring creating two-way sexual selection and thus should be more discriminating in their choice of mates than males of other species. This does not, however, account for why Buss and many other authors have reported the opposite to the findings presented here, since the methodology was the same as in Buss's investigation.

Despite finding no significant interaction effect between sex and trait in the first ANOVA, it was thought that the findings warranted further investigation. As reported above, there were a number of significant sex differences that were the same as those found by Buss (1989). Specifically, "good financial prospects" and "favourable social status" were found to be held by women as being more important in a partner than they were by men. Another result that also concurs with his model is that "good looks" was reported by men to be more important in a partner than it was by women; however this was not a statistically significant difference. Three other significant differences were also found ("similar educational background", "desire for home and children" and "dependable character"). These were all found to be reported as more important to women. Why the first of these three characteristics should be held by women as an important trait in a romantic partner, but not by men, is not clear. The latter two, however, may reflect a desire by women to find a partner who is willing to commit to a long-term relationship. A "desire for home and family" indicates that a prospective mate is looking for a long-term partner who will allow him to invest in a family; while someone with a "dependable character" could probably be relied upon to support a family and not seek further relationships with other women.

There are a number of criticisms that could be leveled at this study. Firstly, the modest size and non-random nature of the sample population means that the present findings cannot be extrapolated to a wider population. It is recommended, therefore that any replications of this investigation should try to access a larger and more representative sample. It should be pointed out though, that it was difficult to obtain VI participants of the correct age bracket (late teenage years to early twenties) since there are (relative to sighted participants) very few eligible VIP. Allied to this

problem, is the fact that in order to maximize the numbers of VI participants, both totally blind and partially sighted people were included in the VI sample. Future studies should try to distinguish between different levels of sight (e.g. fully sighted, partially-sighted and totally blind) in order to see if the amount of sight available to a participant alters any answers given. Would a partially sighted person still use visual cues to physical attractiveness, or would she/he respond as if the small amount of sight available was of no use?

Critics of Buss's (1989) work argued that many of the sex differences would also be predicted by relative economic inequality of men and women (Glenn 1989). This was not felt to be a problem in the current study, since in response to these criticisms Buss calculated the correlation between male-female differences in the value assigned to earning capacity and indices of economic equality between the sexes (-.22) and social-educational equality (+ .08). Neither result was significant, suggesting that gender inequality did not explain variability in sex differences in ratings of importance of earning capacity.

Following on from this study, it is felt that the chief difference between sighted and visually impaired participants - the importance of "good looks" in a prospective partner - suggests that the commonly held view of mate selection may be mistaken (Miller, 1997). Miller (1997) proposed an alternative model, that allows for greater flexibility in making a mating decision. He proposed that mate choices are made in a series of "hurdles". Information is collected trait-by-trait and each trait is compared to the same trait in another potential partner. The selection is made after the first trait which distinguishes one potential mate from the others. The order in which the traits

are assessed can change depending upon the assessor's circumstances. If Miller's model is used for a basis for mate selection, then it is possible for VIP to still consider physical attractiveness as being important in a mate (as they should if mate preferences are universal), but to actually assess partners on other traits first. This is to be the subject of the next investigation in Chapter Four.

Although this present study has produced some interesting results, the final picture should take into account the findings of the investigations that follow. Hopefully the whole set of successive experiments will help to illuminate differences between sighted and visually impaired people in the matter of finding a romantic partner.

CHAPTER FOUR.

BLIND CARDS: COMPARING THE SEQUENCE, WHICH SIGHTED AND VISUALLY IMPAIRED PARTICIPANTS SELECT INFORMATION ABOUT PROSPECTIVE PARTNERS. (STUDY 2)

The previous chapter reported that, while VIP rated the importance of most traits in a prospective partner higher than does a sighted population, when the means are placed in rank order a very high degree of similarity is evident ($r = 0.920$). A notable exception to this pattern was "good looks" which the ranking revealed to be much less important to VIP. On this trait the usually significant higher ratings by VIP reversed, although the comparison was not significant.

It was hypothesized that this may be due to the fact that mating decisions are not made after all possible information is gathered. Rather potential partners are tested, trait-by-trait until one characteristic distinguishes one prospect from another (Miller, 1997). Thus it was suggested that VIP might test - and therefore seek information about - characteristics in a different order to that of sighted people. The difference in the order of assessing traits could arise due to the fact that certain signals (e.g. visual ones) are inaccessible to the visually impaired and they will use, in the initial stages, signals that can be accessed effectively (e.g. olfactory or audible ones).

Miller (1997) describes and evaluates cognitive models of decision-making in the context of mate choice. He claims that most researchers assume that in a mate selection task, all the cues are assessed simultaneously with each one accorded greater

or lesser importance (the "weighted linear model"). This means that all information has to be gathered and accorded some weight before an assessment of (or comparison between) potential mates can begin. The varied costs of trait detection make the weighted linear model problematic. For example physical traits (such as body shape or symmetry of face) can be detected with just a cursory look but other features (such as personality, intelligence and social and sexual skills) can only be determined after some time interacting with the person.

Miller proposed that instead of waiting to collect all relevant information about a person and then making a mating decision based on the weighted aggregate, a sequential strategy of assessment of potential partners using a trait-by-trait method would mean that a mating decision could be made on the first trait which distinguished one potential partner from the rest. For example, if three potential partners all seemed to pass the assessment of the first trait, but one of them failed on the assessment of a second trait, then the competition would be between the remaining two potentials. The final choice between these two potentials would then be made when one of them failed an assessment on a later trait. In this way, not all the information about all the potential mates needs to be gathered before making a decision about them. This model is based upon the "take-the-best" algorithm - a cognitive model proposed by Gigerenzer and Goldstein (1996). These authors tested a number of different cognitive models of decision-making under conditions of limited knowledge. They found that the "take-the-best" algorithm performed as well as (if not better than) the other models but used less information and took less time than its competitors. In the model, an individual makes a choice between two options (in this case, potential partners) by comparing their features one at a time. A decision

is made between the potentials when one of the features of one of them contrasts unfavourably with the same feature of the other. The order in which characteristics of potential partners are tested can be different for different individuals, depending on her or his circumstances. For example, whether a person was looking for a short- or long-term relationship or whether the person seeking a partner was female or male.

The order of trait comparisons may also depend on the accessibility of the traits. For instance, easy-to-collect information about a person (such as health and youth which are signalled, for sighted people, by physical attractiveness) could be used as a guide as to whether or not to talk to a person. Then, during conversation with a prospective partner, other information can be discovered, such as where they come from, what their occupation is and details of their personality. If the prospective partner "passes" the first stage, then the relationship may go further. With mutual consent, growing intimacy may result in a sexual relationship. Having established that a prospective partner has the appropriate social and/or sexual skills, then a person may feel able to make the decision of whether or not to accept this individual as a long-term mate. This decision could, of course, be made at any point in the growing relationship. Thus prospective partners will be distinguished by the first quality on which they differ.

The take-the-best algorithm can also be used to help explain the reported observations that humans seem to prefer more physically attractive partners for short-term relationships and more resourceful partners for long-term relationships (Miller, 1997). This is to say, if someone selects another person on the basis of her or his looks but then reverses the decision after talking to her or him, it will seem that physical

attractiveness is a desirable characteristic in short-term relationships. Likewise, if a person seems to be more concerned with psychological characteristics in a long-term partner, this is because these traits take longer to investigate.

This algorithm is a faster system of choosing a partner since it relies on less information before a choice is made; there is no wait for all the information to be gathered before reaching a decision. As well as its speed, another advantage of this model is its plasticity. This flexibility would allow a person with a visual impairment to look for information in a different order from that sought by a sighted person, rather than simply failing to collect information that she or he could not gather due to her or his impairment. If the sequential model is correct, it may explain the findings of the previous chapter. The downward displacement of good looks in VIP populations may indicate that information about prospective partners is sought in a different order to that of a sighted person.

The sequential model of courtship also gels with models offered by a number of other researchers. As summarised in Chapter One, Perper (1989) described courtship as a series of events that are generally carried out in a particular order. It seems that throughout this process there is a sequence of information gathering. Acquainting oneself with details about a potential partner may begin before even seeing her or him; the opinions of other people and the potential mate's social reputation may well be known beforehand and may be the initial trigger for interest. Alternately, appraisal of a potential mate may begin with the first meeting with evaluation of physical features, clothes and behaviour. Whenever it starts, once the procedure has begun, the accumulation of information about a person implied by Perper's model of courtship,

fits well with the model of mate choice proposed by Miller. At any point, one of the two people involved in a courtship display might not respond to an overture made by the other thus demonstrating that they have made a decision (based on gathered information) that they do not want to continue with the courtship.

The present study is designed to test the hypothesis that visually impaired people look for information about a prospective partner in a different order from that of sighted people. The take-the-best algorithm stipulates that there can be variation in the order in which information is gathered, depending on the ecological utility of the information being sought. That is, the order in which information is sought about a person will depend upon how useful that information is to the seeker at that particular time. This is influenced by the circumstances in which the seeker finds her or himself; these circumstances could change over time, place and situation. Thus it seems reasonable to propose that VIP would not look for information in the same order as sighted people. If they are unable to detect visual signals such as physical attractiveness directly, then they may concentrate on other traits in the potential partner first, waiting until they are sure that it is worth seeking further information that would be harder to collect.

This may seem contrary to the evolution-based proposal that humans of the same sex should express the same preferences for their mates. This may not be the case, however. It is possible that expressed preferences for mates would be the same for everyone given the same conditions of access. Because access is different for VIP than for sighted people, VIP will express their preferences for a partner in a different order to sighted people.

As previously described, Buss (1989) study collected three sources of information from his participants. The demographic and rating data were presented in his 1989 article, but he also presented participants with a set of characteristics, which they were then asked to rank in order of importance. This information was then used to compare with his rating data.

The findings of this ranking study were reported in Buss et al. (1990). The participants (N = 9,474, in 37 samples from 33 countries) ranked a list of thirteen characteristics. This list had been developed from a previous study (Buss and Barnes, 1986) using factor analysis to reduce a seventy-six-item instrument concerning mate choice criteria, then widely used in America. Participants were asked to rank these traits in order of desirability in a prospective partner. Thus they were asked to put a "1" against the most desired characteristic, "2" against the second most desired characteristic and so on until the thirteenth most desired trait was reached which was given a score of "13". The results from the ranking study were very similar to those of the rating investigation.

In the current study, a slightly different approach was used in order to investigate the sequence in which visually impaired and sighted people assess potential partners. The participants were presented with a set of characteristics, based on those used by Buss but with the addition of personality traits which have been less intensively studied in this context. The five "big personality dimensions" were included; agreeableness, conscientiousness, extroversion, openness and intelligence (Costa and McCrae (1994). "Financial support" was also included, in order to convey a sense of being able to support a family financially: it was designed to include the fact that a potential

partner might be able to bring more than just earning potential to a relationship (such as a house, car, etc.). A final addition to the list of traits was "body size". This was included in order to test whether the overall size of a person effected her/his chances of being selected as a partner. Participants were asked to select the characteristics in the order in which they would wish to know the information about a prospective mate. They were effectively asked what information they would like to know first about any prospective partner, what information they would like to know next and so on.

Buss et al.'s (1990) study asked participants to rank the list of traits in order of importance in a potential partner. In the current study, however, the purpose was not to investigate the relative importance of the traits (this had been done in the replication of Buss's (1989) rating study reported in Chapter Three). Instead the intention was to probe into the order in which the traits were assessed by the participants. Thus instead of giving the participants a list of traits to rank order, a series of cards labelled with trait names were used that could be placed in the order in which the participants wanted to find out about a prospective partner (see Method section below for details of how the cards were used). This card methodology also allowed the investigator to ascertain how much information each participant required before being able to make a decission of whether or not to firstly go on a date with the prospective partner and secondly to marry her or him. In other words, if Miller's (1997) sequential model of mate selection is correct, it is not the case that all available information about a prospective partner should be gathered before a mating decision is made, rather each potential partner is assessed on a trait-by-trait basis, until either one trait distinguishes the potential from her or his rivals, or (if there is no one to

compare against) until enough information is known about her or him to make a decision viable.

The use of the cards also allowed the investigator to ask specific questions about each trait that was used in this study. For example, participants were asked how much of each trait they wanted in a prospective partner. So when discussing "height" the participant was asked if she or he preferred her or his partner to be taller, the same height or shorter than her or himself; in the case of extroversion she or he would be asked if the partner should be more, less or equally extroverted as her or himself. This process meant that an element of reality could be given to the fictitious potential partner. That is, when the participant is asked if she or he would date or marry the potential partner, it was possible to say that the potential had the level of the trait that was preferred by the participant.

Hypotheses.

Although evolutionary theory states that everyone of the same sex will express similar preferences for a sexual partner, it was found in the last chapter that visually impaired people seem to have different preferences in the case of visually detected features. It is hypothesized that VIP collect information about a prospective partner in a different order to sighted people; specifically, visually impaired people will ask for information about a prospective partner's physical attractibeness at a later point to that of sighted people.

Further to this, it is also suggested that the different sexes will ask for information about a prospective partner in a different order. Women will look first for traits indicating a greater control over resources or a potential for greater control over resources and will prefer men who are taller and bigger (thus more able to offer physical protection). Men will first look for traits indicative of fertility, youthfulness and chastity. Also, since women are more selective when choosing a partner, it is predicted that they test prospective partners more than men do and therefore will want to know more information about a prospective partner before agreeing to go on a date or marry him than will males.

Method.

Participants.

One hundred and fifty people took part in this study. One hundred were sighted undergraduate students from Durham University and fifty were VI students from the royal National College in Hereford and the R.N.I.B. New College in Worcester. There were one hundred and seven female and forty-three male participants. They were all aged between eighteen and twenty-four years. All had English as their first language and were all naive of the subject. Since there was a problem with data collection one investigator asked incorrect questions only twenty-five of the VIP participants could be used in this study.

Procedure.

Each trait was presented to the participants on a separate card. For the VI sample, the characteristic was printed in both large print (30 point) and in Braille, while for the

sighted sample the cards only presented the traits in small print (10 point). Each participant was asked to first read through the cards to familiarize her or himself with the characteristics. Participants were then told to imagine that they were applying to a dating agency and that the cards represented information about prospective partners. The dating agency wanted to know what characteristics a partner would need to possess in order to be acceptable for a long-term relationship. The agency also wanted to know what was the most important characteristic - that is, which characteristic the participant wanted to know about first. Thus they were told to divide the cards into two piles: one containing characteristics that they wanted to know earlier, the other containing information that they could wait for. Each pile was then to be subdivided into two more piles (with the same criteria) and then each sub-pile was split into two further stacks. This process continued until a continuum of characteristics was achieved, ranging from the characteristic that the participant would like to know first of all, to the trait that she or he claimed that could wait until last.

The cards were gathered up in order. The investigator then began with the characteristic that was prioritised as being first and asked the participant whether she or he would prefer her or his partner to have more, less or the same amount of that characteristic. For example, if "openness" was selected as the first trait to be known, the investigator would ask if the participant wanted her or his partner to be more open, less open or have similar amounts of openness to her/him. Having gained this information, the investigator offered the participant a date with a hypothetical partner who possessed that level of the trait.

If a date was accepted then they were asked if this was enough information to agree to marry the same (fictional) person. The next trait in the sorted sequence was then addressed in the same way, assessing the effect of cumulative knowledge on partner decisions. In this way the minimum amount of information required by each participant before being able to decide whether or not she or he would date or marry that person was established. The participant was only asked about marrying a prospective partner once she or he had agreed first to date the partner. Once an agreement about marriage was reached, the procedure was stopped.

This method therefore gathers three data points for each participant. First, the order in which a participant selected traits to be revealed about a prospective partner. Second, the nature of each characteristic of a partner in relation to the participant. Third, the minimum amount of information required by each participant before a decision could be made whether or not to date or marry a prospective partner.

Characteristics Used.

Twenty traits were included in this study. The list used in this study was based upon those used by Buss et al. (1990) plus the five major personality traits and "body size" and "financial support". The complete list of characteristics was: "age", "agreeableness", "ambition", "body size", "commitment to home and family", "conscientiousness", "education", "emotional stability", "extroversion", "facial attractiveness", "financial support", "good cook and housekeeper", "health", "height", "intelligence", "mutual love and attraction", "openness", "previous sexual experience", "sense of humour" and "social status".

Results.

These three sets of data gathered in the study will be considered in turn: the order in which participants wanted to know information about a prospective partner, the amount of information each participant would need before making a decision to date and marry a prospective partner; and the specific qualities of each trait for each participant.

Order of information requested.

Each trait was given a value corresponding to the order it was requested in by a participant. Thus the first requested characteristic was given the value of 1 and the last was given a value of 20. The mean score for each trait could then be calculated for each group (sighted and VIP, female and male).

One of the criticisms of Buss et al. (1990) was that they used too many t-tests and therefore risked capitalizing on chance. In order to avoid this in the current study, analysis of variance was used. The design was 2 (sight condition) by 2 (sex) by 20 (trait), the first two independent variables were between group factors and the traits were a repeated measure. Because a raking procedure was used (which required each participant to use each of the 20 ranks and hence summing or averaging over them gave a constant) the main effects of sex and sight condition were not informative. I focus therefore on the main effect of traits and the interaction terms.

A main effect of traits was found ($F=70.241$, $df=19$, $p< .0001$). Table 4.1 shows the overall mean values of traits and the results of the Bonferroni post-hoc test which was carried out on this data. The Bonferroni comparisons showed that "mutual love and attraction" was, as in Chapter Three and Buss (1989), near the top of the rank order. This time, however, "mutual love and attraction" was ranked as being second. The trait ranked by the participants overall as being the first piece of information that they would like to know about was "sense of humour".

Four of the top five ranked characteristics are personality traits ("sense of humour", "openness", "intelegence" and "agreeableness"). The only characteristic that was not a personality trait was "mutual love and attraction" and this was described by Buss (1989) as being not so much a characteristic, but more a state of the relationship. "Facial attractiveness" was ranked fairly low down and it seems that there are many characteristics that the participants wanted to know about a prospective partner before how facially attractive she or he is. In fact, the only characteristics which "facial attractiveness" was ranked significantly higher than were "height", "social status", "good cook and housekeeper" and "past sexual experience".

Table 4.1: Overall Mean Values Assigned to Traits by All Participants with Post-Hoc Contrasts.

Trait Number	*Trait name*	*Mean*	*Standard error*	*Bonferroni difference p< .001. This trait is ranked significantly higher than*
17	Sense of humour	3.514	.262	Openness (20) and below
16	Mutual love and attraction	4.087	.318	Openness (20) and below
20	Openness	6.726	.481	Ambition (4) and below
1	Intelligence	7.129	.406	Conscientiousness (19) and below
14	Agreeableness	7.467	.367	Conscientiousness (19) and below
7	Emotional stability	7.750	.405	Health (3) and below
9	Commitment to home and family	8.745	.498	Body size (12) and below
4	Ambition	9.641	.391	Body size (12) and below
19	Conscientiousness	9.991	.401	Age (8) and below
18	Extroversion	10.486	.486	Financial support (2) and below
3	Health	11.089	.362	Financial support (2) and below
11	Facial attractiveness	11.098	.520	Height (6) and below
12	Body size	12.711	.422	----
8	Age of partner	13.155	.437	----
15	Education	13.308	.419	----
2	Financial support	13.851	.392	----
6	Height	14.262	.427	----
10	Social status	14.843	.377	----
13	Good cook and housekeeper	14.917	.415	----
5	Past sexual experience	15.147	.436	----

No three-way interaction between trait, sex and sight condition was found ($F=1.360$, ns), although a traits by sex interaction was found ($F=2.808$, $df = 19$, $p< .0001$) (table 4.2) as well as an interaction between trait and sight condition ($F=7.788$, $df=19$ $p< .0001$) (table 4.4). One-way analyses of variance were thus performed in order to further investigate both of the two-way interactions.

Table 4.2: Means and Standard Errors for Male and Female Participants.

	Males		Females	
Trait	*Mean*	*Standard error*	*Mean*	*Standard error*
Intelligence	6.279	.697	7.028	.450
Financial support *	15.279	.568	13.233	.449
Health	11.046	.517	11.084	.388
Ambition	9.674	.671	9.551	.414
Sexual experience	15.651	.703	14.925	.452
Height *	14.930	.646	13.158	.458
Emotional stability	8.162	.699	7.158	.410
Age of partner	12.907	.703	13.093	.458
Commitment to home and family	9.720	.881	8.355	.505
Social status	15.441	.563	14.990	.424
Facial attractiveness	10.348	.976	10.102	.602
Body size **	11.162	.814	13.607	.418
Good cook and housekeeper	15.976	.550	14.943	.500
Agreeableness	7.627	.514	7.046	.403
Education	13.418	.693	13.775	.443
Mutual attraction	3.627	.464	4.149	.349
Sense of humor	2.930	.331	3.738	.298
Extraversion	9.883	.626	11.280	.536
Conscientiousness	10.186	.677	10.233	.413
Openness **	5.742	.594	8.448	.552

* $p < .05$, ** $p < .01$

Four of the sex differences were significant. Females prioritised financial support ($F(1,148) = 6.614$, $p < .05$) and height ($F(1,148) = 4.535$, $p < .05$) higher than males. Males prioritised body size ($F(1,148) = 8.528$, $p < .01$) and openness ($F(1,148) = 8.105$, $p < .01$) higher than females.

Table 4.3 shows the mean order in which males and females wanted to know information about a potential partner.

Table 4.3: Sex Differences in Ranked Order of Traits.

	Female Trait Order	*Male Trait Order*
1	Humour	Humour
2	Mutual attraction	Mutual attraction
3	Intelligence	Openness
4	Agreeableness	Intelligence
5	Emotional stability and maturity	Agreeableness
6	Commitment to home an family	Emotional stability and maturity
7	Openness	Ambition and industriousness
8	Ambition and industriousness	Commitment to home and family
9	Facial attractiveness	Extroversion
10	Conscientiousness	Conscientiousness
11	Health	Facial attractiveness
12	Extroversion	Health
13	Age of partner	Body size
14	Height	Age of partner
15	Financial contribution	Education
16	Body size	Height
17	Education	Financial contribution
18	Chastity	Social Status
19	Good cook and housekeeper	Chastity
20	Social status	Good cook and housekeeper

A Spearman's rank correlation was calculated for the data shown in Table 4.3. The rank order of the two sexes was significantly similar ($r = 0.950$ $p < .001$). The fact that there was no difference in the order in which the two sexes ranked the traits is counter to the hypothesis that there would be such a difference. The analysis of variance reported above, however, does show that women prioritized "financial support" (indicating control over resources) and "height" (indicating an ability to provide physical protection) in line with predictions. It was also expected that women would prioritise "social status" (also as being indicative of control over resources), "education" (indicating potential control over resources) and "body size" (another

indication of ability to protect) but these differences were not evident in the results presented above. Men were hypothesized to prioritise "age of partner", "facial attractiveness" and "previous sexual experience" (as cues to a woman's fertility and chastity). These differences were also not found; instead men prioritised "openness" and "body size". Since "body size" is a physical feature, it is perhaps not surprising that men should ask about this quality in a potential partner before women did. Rather than being seen by female participants as being a sign of protection, it may have been interpreted by the male participants as being a cue to physical attractiveness. Why "openness" should be prioritised by males as opposed to females, is not clear. It is, however, possible that the participants (or at least the male ones) interpreted this trait as being analogous to truthfulness or fidelity - in which case it would be expected to have been prioritized more by men than by women.

The mixed support received by this hypothesis may be explained by the fact that humans are one of the rare mammals where fathers provide substantial investment for their children. This results in a two-way sexual selection, in which males will seek to be more selective about their mates than males of other species. Other studies (e.g. see Buss and Schmitt, 1993), however, have found the predicted sex differences, but these have used different methods and it may be that the innovative methodology used in this investigation (placing cards into the desired order that information was wanted) may have affected the results. This is to say, the other investigations of human mate preferences have all asked participants to rank (or rate) traits in respect to how important or desirable they are in a potential partner and not what order the participants wanted to know information about a potential partner. Thus the results of this analysis and those from other studies are not directly comparable.

Table 4.4: Means and Standard Errors for Sighted and VI Participants.

	Females		Males		
Trait	Mean Score	Standard error	Mean Score	Standard error	F value
Good cook and housekeeper	1.33	.096	1.13	.110	2.26
Pleasing disposition	2.16	.123	1.93	.120	1.82
Sociability	2.53	.092	2.21	.091	1.26
Similar educational background	1.77	.130	0.81	.130	4.56*
Refinement, neatness	1.77	.121	1.51	.120	2.26
Good financial prospects	1.75	.115	0.94	.116	24.16***
Chastity	0.82	.150	0.51	.113	2.82
Dependable character	2.43	.098	2.09	.124	4.49*
Emotional stability and maturity	2.37	.074	2.30	.092	0.36
Desire for home and children	1.77	.150	1.26	.153	5.47*
Favourable social status or rating	1.28	.122	0.93	.120	4.17*
Good looks	1.33	.127	1.51	.116	1.05
Similar religious background	0.98	.157	0.66	.140	2.32
Ambition and industriousness	1.77	.114	1.62	.112	0.79
Similar political background	0.73	.122	0.47	.099	2.61
Mutual attraction, love	2.73	.080	2.64	.090	0.49
Good health	1.88	.130	1.66	.108	1.74
Education and intelligence	1.94	.138	1.70	.119	1.78

*** $p < .001$. ** $p < .01$, * $p < .05$

As shown in Table 4.4, sighted participants gave significantly higher priority to intelligence ($F_{(1, 148)}$=20.709, 9< .001), height ($F_{(1,148)}$=5.406, p<.05), facial attractiveness ($F_{(1,148)}$=40.885, p<.001), body size ($F_{(1,148)}$=6.694, p<.05) and sense of humour ($F_{(1,148)}$=5.613, p<.05). The VI participants gave significantly higher priority to financial support ($F_{(1,148)}$=9.587, p< .01), commitment to home and family ($F_{(1,148)}$=4.204, p<.05), social status ($F_{(1,148)}$=12.665, p<.001), good cook and housekeeper ($F_{(1,148)}$=21.011, p<.001), education ($F_{(1,148)}$=8.206, p<.01), conscientiousness ($F_{(1,148)}$=4.290, p<.05) and openness ($F_{(1,148)}$=10.728, p<.001). The fact that the sighted participants ranked facial attractiveness as being of a greater priority than the VI participants, lends support to the hypothesis that visual signals (such as facial attractiveness) are not used by VIP in the initial stages of an assessment of a potential partner. The placing of "financial support", "social status" and "education " by VI participants as being of a higher priority than did the sighted participants can be seen as an indication of visually impaired people looking for someone with control (or potential control) over resources. While their giving higher priority to "commitment to home and family" and "good cook and housekeeper" may reflect a preference for partners who are willing to commit those resources they have to only one person.

A Spearman's rank order correlation was calculated for the data presented in Table 4.5. The ordering of the traits by the visually impaired and sighted participants was significantly similar (r = 0.761 p< .01). The Spearman's correlation suggests that sighted and visually impaired people assess potential partners in a similar order to each other. The analysis of variance presented above, however, shows that there are some differences. Specifically, the sighted participants prioritised traits that indicate

physical appearance ("facial attractiveness", "body size" and "height"); while the visually impaired participants prioritised certain personality traits ("conscientiousness" and "openness") although sighted participants did place a priority on "intelligence" and "sense of humour".

The differences found by this analysis (the fact that sighted people wanted to know about a prospective partner's physical appearance before the VI participants) can be seen as support for the hypothesis that VIP assess visual cues (physical appearance) later in a relationship, relative to sighted people. These results can also be seen as support for Miller's (1997) sequential model of mate selection, where potential mates are assessed on a trait-by-trait basis and where the order in which the traits are assessed can change depending upon the assessor's circumstances. It demonstrates that although VIP give the same importance to traits as did sighted people (Spearman's rho correlation between the two sight conditions was 0.908; Chapter Three), they may seek for them in a different order.

Table 4.5: Sight Condition differences in Rank Order of Traits.

	VIP Trait Order	*Sighted Trait Order*
1	Sense of humour	Sense of humour
2	Mutual attraction	Mutual attraction
3	Openness	Intelligence
4	Commitment to home and family	Agreeableness
5	Agreeableness	Emotional stability and maturity
6	Emotional stability and maturity	Facial attractiveness
7	Intelligence	Openness
8	Conscientiousness	Commitment to home and family
9	Ambition and industriousness	Ambition and industriousness
10	Extroversion	Conscientiousness
11	Health	Health
12	Education	Extroversion
13	Financial contribution	Body size
14	Good cook and housekeeper	Age of partner
15	Social status	Height
16	Age of partner	Education
17	Facial attractiveness	Financial contribution
18	Body size	Chastity
19	Chastity	Social status
20	Height	Good cook and housekeeper

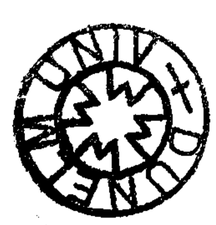
When to Date and When to Marry.

The second set of data concerned the point at which a participant would agree to go on a date and would agree to marry a prospective partner. Once a participant had indicated that she or he had enough information to make a decision, the number of traits requested to that point was counted. A 2 (sex) by 2 (sight condition) analysis of variance was performed with the dependent variable being the number of traits requested before agreeing to go on a date. A similar analysis was carried out on the data concerning how many traits were asked for before deciding to marry the partner.

No significant result was found regarding sight condition and when a dating decision was made ($F_{(1,146)}=1.941$ ns). In regard to decisions of whether or not to marry however, a significant difference was found between the two sight conditions

($F_{(1,146)}$=13.303 p<.001). Sighted participants required information on 10.076 (se=0.457) traits before being prepared to make a decision about marrying someone; while the VI participants only required 7.415 traits (se=0.569). The fact that the visually impaired participants make a decision whether or not to marry someone after fewer traits need not necessarily indicate that they are less selective than the sighted participants, in fact the results of the last study (Chapter Three) showed the VI sample to be more selective than the sighted group. One explanation for the visually impaired participants requiring fewer traits before making a decision whether or not to marry, might be that since it has been shown above that VIP assess physical appearance at a later stage than sighted people do, they might not be so influenced by a potential partner's appearance and thus be more able to make mating decisions on less information.

No sex differences were found for dating ($F_{(1,146)}$=2.766, n.s.) or marrying ($F_{(1,146)}$=0.417 ns). Neither dating ($F_{(1,146)}$=0.846, n.s.) nor marriage ($F_{(1.146)}$=0.610, n.s.) showed a significant interaction between sight condition and sex. These results show that females and males assess the same number of traits before making dating and marrying decisions, counter to the hypothesis that women would require more information about a prospective partner before making either dating or marrying decisions. As with the failure to find sex difference in the order of traits requested, this may be because two-way sexual selection means that both sexes are equally selective about dating and marriage partners.



Preferred trait level in partner.

Participants were also asked whether they would prefer a partner with more, less or the same amount of each trait as them. The responses were coded as +1 (more), 0 (same as) and -1 (less). A two (sex) by two (sight condition) by 20 (traits) analysis of variance was performed, comparing the scores that were assigned to all the traits. A main effect of traits was found ($F=3.657$ $df=19$ $p< .0001$). Table 4.6 shows the means scores of the traits for the entire sample. These results, however, are not readily interpretable since they mix together the data from females, males, sighted and visually impaired participants and this data was collected in order to provide a comparison within the two groups (female versus male and sighted versus VI). From the Bonfirroni comparisons, however, it can be seen that all the traits were all given a positive score, indicating that the participant preferred partners who had more of the trait than they did themselves (e.g. the partner should be taller, or should be more extroverted).

A significant interaction was found between sex and trait ($F=16.776$ $df=19$ $p< .0001$) although not between sight condition and traits ($Ff=1.382$ $df=19$ ns).

Table 4.6: Overall Mean Scores, Standard Errors and Bonferroni Comparisons.

Trait	*Trait number*	*Mean*	*Standard error*	*Bonferroni difference p<.001. This trait significantly lower than...*
Education	6	.054	.033	Facial attractiveness (10) and below
Intelligence	20	.074	.040	Sense of humor (4) and below
Openness	1	.101	.043	Emotional stability (14) and below
Sexual experience	16	.101	.051	Emotional stability (14) and below
Commitment to home and family	12	.108	.032	Emotional stability (14) and below
Ambition	17	.122	.049	Emotional stability (14) and below
Social status	11	.176	.039	Height (15)
Conscientiousness	2	.182	.055	----
Extraversion	3	.182	.057	----
Mutual love and attraction	5	.196	.037	----
Good cook and housekeeper	8	.209	.054	----
Health	18	.223	.038	----
Agreeableness	7	.243	.044	----
Financial support	19	.264	.052	----
Facial attractiveness	10	.338	.048	----
Sense of humor	4	.358	.049	----
Body	9	.372	.059	----
Emotional stability	14	.439	.055	----
Age of partner	13	.453	.052	----
Height	15	.520	.061	----

Table 4.7 below gives the means, standard errors and significant comparisons by sex.

Compared to females, males gave lower ratings on the following traits, although the mean values for both sexes were positive in sign: sense of humour ($F(1,148)=19.600$, $p< .001$), younger age ($F(1,148)=40.594$, $p<.001$), emotional stability ($F(1,148)=11.245$, $p<.001$) height ($F(1,148)=336.803$, $p<.001$), less ambition ($F(1,148)=6.502$, $p<.05$ and financial support ($F(1,148)=14.402$, $p<.001$). On two traits, males not only gave significantly lower values than females but the male mean

was negative suggesting they were looking for female partners with significantly less of this quality than they themselves had: body size (F (1,148)=29.413, p<.001) and past sexual experience (F(1,148)=16.498, p<.001).

Compared to males, females gave lower scores on good cook and housekeeper (F (1,148)=23.496, p<.001) and commitment to home and family (F(1,148)=9.472, p<.01).

Table 4.7: Means and Standard Errors of Female and Male Participants.

	Males		Females	
Trait	Mean	SE	Mean	SE
Openness	.233	.078	.047	.050
Conscientiousness	.326	.102	.124	.065
Extraversion	.023	.104	.248	.067
Sense of humour ***	.046	.086	.486	.055
Mutual love and attraction	.256	.068	.171	.044
Education	.023	.061	.066	.039
Agreeableness	.326	.081	.210	.052
Good cook and housekeeper ***	.581	.093	.057	.059
Body ***	-.093	.101	.562	.064
Facial attractiveness	.442	.088	.295	.056
Social status	.163	.073	.181	.047
Commitment to home and family **	.256	.058	.047	.037
Age of partner ***	.000	.086	.638	.055
Emotional stability ***	.163	.099	.552	.064
Height ***	-.442	.063	.914	.040
Sexual experience ***	-.209	.091	.229	.058
Ambition *	-.069	.089	.200	.057
Health	.302	.071	.190	.045
Financial support ***	-.023	.093	.381	.059
Intelligence	.046	.074	.085	.047

*** p>.001, ** p<.01, * p<.05

Discussion.

Similar to the predictions by Buss et al. (1990), financial contribution to a partnership was considered to be a higher informational priority by female participants than by male participants and women preferred their partners to contribute more financially to the relationship than they did themselves. In addition, women more than men preferred their partners to be more ambitious than they were. There was, however, no significant difference between female and male priority given to social status of partner. Women would be expected to give a higher priority to social status than men did, since, as with the other characteristics just mentioned, it is thought to be an indication of how capable a man is of providing for his partner and children.

Another result of this study that supported evolutionary theory and Buss is that men, more than women, were found to prefer their partners to be more chaste than they were. This is thought to be an indication of men's attempt to assure paternity of any children. One unexpected result was that body size is a higher priority for men rather than women, since, it would be expected that women would prefer bigger men who would probably be able to offer greater physical protection. It was suggested that the trait "body size", which was meant to indicate the ability to protect might have instead indicated simply physical appearance and thus was prioritized by men. One further finding that supports this explanation is that women did, however, prioritize "height" relative to men.

Another unexpected finding was that no significant difference was found in the prioritizing of "facial attractiveness". Some evolutionary psychologists (e.g. Buss,

1989) have claimed that men should have a greater preference for a facially attractive woman than women do for an attractive man. Buss et al. (1990) did not find this in his study, nor was it apparent in the current investigation. One explanation for this could be that although men are looking for younger mates than women (to optimise chances of having children; Buss 1989), women choosing attractive men as mates increases their chance of having attractive sons. To this can be added the association between attractiveness and various traits that should show no sex differences in mate preference - such as intelligence (e.g. Furlow, Armijo-Prewitt, Gangestad and Thornhill, 1997) and health (Jones, Little, Penton-Voak, Tiddeman, Burt and Perrett, 2001). Thus it may be that men do not actually prefer attractiveness more than women in their partners. Further this finding could be explained that while Buss (1989) and others (Sprecher, Sullivan and Hatfield, 1994) have found that men give a greater importance to facial attractiveness than women do, the current study has found that men do not assess potential partner's facial attractiveness at any earlier stage than women.

With regard to sightedness, people with no visual impairment gave a higher temporal priority to facial attractiveness than did visually impaired people. This fits with the idea proposed earlier that, although VIP rate facial attractiveness as being as important as do sighted people, they do not prioritise facial attractiveness as much as sighted people. VIP may rate facial attractiveness as equally important as their sighted peers, but they look for other cues in a potential partner before assessing facial attractiveness.

*The results which show that there are differences in the order in which people assessed traits in a potential partner, depending upon their sight condition support Miller's (1997) sequential model of mate selection. An important aspect of his model is that the order in which traits are assessed is not fixed. It can change depending upon the assessor, or even upon the assessor's circumstances; thus the order in which traits are assessed could change from person to person, or the same person could alter her or his order depending on where or even when she or he is. Thus, since a visually impaired person cannot gather information about another person's physical attractiveness through visual signals (due to their impairment) and assuming there are no analogous non visual signals, then it seems advantageous for humans to be capable of being able to select a partner on the basis of non visual traits (e.g. assessing a potential partner's personality rather than her or his physical attractiveness).

The results of this study should be interpreted in the light of the fact that the methodology was relatively untried. The system of presenting participants with a series of cards so that they could be selected in rank order has not, as far as could be determined, been widely used before now. Neither has the question of the preferred order that participants seek information been asked before. Thus, it is not really possible to directly compare the results of this investigation with those of other studies, although the findings of previous work have been used to guide the original purpose of the current investigation (e.g. Buss et al., 1990).

The question now remains, however, in the real world, what do visually impaired people look for in a partner and, coupled with this, how do they find this information? This issue will be discussed in following chapters. In order to do this, further

investigations will now change from using a quasi-experimental methodology and will focus attention more onto real examples of partner choice.

CHAPTER FIVE.

BLIND LOVE:

SPLITTING ATTRACTION

The previous two chapters have examined whether or not visually impaired people consider physical attractiveness to be as important in mate selection as sighted people do. Chapter Three found that sighted and visually impaired samples assigned broadly similar importance to the presented traits ($r = 0.920$). Contrary to the predominant pattern of higher ratings by VIP, they assigned a lower value to good looks than did the sighted participants, suggesting that visual signals (such as physical attractiveness) were of more importance in a potential partner to sighted people than to VIP.

If visually impaired people rate good looks as being less important then it would be antithetical to the idea of universal traits: If all humans have inherited evolved strategies for maximizing reproductive success, then this applies to all humans no matter what their disability. No difference, however, between sighted and visually impaired people in the importance accorded to visual cues, such as good looks, runs counter to common sense since it would seem impossible for a visually impaired person to detect attractiveness in a potential partner.

In Chapter Four participants were asked to indicate the order in which they wanted to gain information about a prospective partner. The two sight condition groups (sighted and visually impaired) ranked the traits very similarly ($r=0.761$). There were, however, some significant differences between the groups: Sighted participants gave significantly higher priority to height, facial attractiveness, body size, sense of

humour and intelligence. VI participants gave significantly higher priority to financial support, commitment to home and family, social status, good cook and housekeeper, education, conscientiousness and openness.

The results from the previous two chapters did not seem to fit very well. How could the two groups assign the traits the same importance, but prioritise them differently? It was suggested that the interpretation of the results of Buss's (1989) study (upon which Chapter Three was based) was founded on a concept of mate selection that, although generally accepted, may be challenged. The weighted linear model, which forms the basis of Buss's interpretation, was criticized by Miller (1997) who then proposed an alternative sequential model (see Chapter Four).

Interpreting the Data with Miller's (1997) Model.

Miller's model can interpret the findings from the first two studies since it hinges on the idea that people do not wait until all available information is known to make a decision about a prospective mate. Instead information about relevant traits is used sequentially. Miller's (1997) model allows visually impaired people to look for the same characteristics in a partner as a sighted person but in a different order. This was the topic investigated in Chapter Four, where it was indeed found that visually impaired and sighted people gave different priorities to different characteristics.

VIP do not differ from their sighted peers in their rating of the desirability of physical attractiveness but temporally seek this information later. VIP cannot determine who is and who is not physically attractive visually. Thus it would appear that (with the

lack of nonvisual cues to physical beauty) VIP are at a disadvantage compared to their sighted rivals. Because there is little research on non-visual cues that could replace attractiveness as an indicator of partner "quality", we can only speculate on what VIP use to assess quality in potential partners. There are, however, a number of possibilities that were considered in Chapter Two.

VIP may not, however, be at such a disadvantage, as it would first appear. If human mate selection was purely a matter of choosing someone with whom to mix genetic material, then they would indeed be disadvantaged in the mating game, since physical attractiveness in general and facial attractiveness in particular have been hypothesized to be signals of genetic "quality", health and fertility (e.g. see Furlow, Armijo-Prewitt, Gangestad And Thornhill, 1997; Jones, Little, Penton-Voak, Tiddeman, Burt and Perrett, 2001; Shackelford and Larsen, 1999). A visually impaired person will not be able to identify who was and was not physically attractive. Humans, however, do not choose a long-term mate solely on the basis of genetic quality (e.g. Buss and Schmitt, 1993). The altricial nature of human babies means that there is a large amount of parental investment after the child is born. Humans are notable for the contribution made by fathers as well as mothers to this care (Buss and Schmitt, 1993; Geary, 2000). Thus it would have been an advantage for our ancestors to have preferred mates who showed evidence of the ability to raise children (e.g. possibly via cues such as intelligence or skill in child care). It would seem to be an advantage to raise a child to adult status with two parents, rather than one; it is possible for one parent to do so, but a second parent helps. The parents may also enlist additional kin and extended family to help with the rearing of the child and to support the parents.

The Advantages of Paternal Investment and the Evolution of Monogamy.

Although humans vary in their reproductive strategies, Kenrick and Trost (1987) argue that a powerful predisposition to pair bonding has been selected because of the long period of infant dependency, together with the benefits gained by the direct contribution of resources by a male to his own offspring. Murphy (2002) claims that "divorce" would involve a cost to a man in future relationships since it identifies him as a potential non-investor in the partnership and resultant children. It thus benefited men to choose carefully and stay with one partner, at least for as long as any children would benefit from his investment. Kenrick and Trost present evidence that females select a mate either on the basis of male genes which will contribute to a successful surviving offspring or, especially with species who develop pair bonds such as modern humans, on the basis of evidence suggesting that he is willing to invest time and energy in the care of her and any of their offspring resulting from the mating. They argue that bonding species often display lengthy courtship periods before mating and it is assumed that both individuals use this prolonged period of courtship to assess their potential partner.

As with most other animals, human males can potentially sire more offspring than can females over their life time and can maximize their reproductive potential by taking advantage of extra-pair bond copulations (EPC), thus being more promiscuous than females. Women too do take part in EPC relationships, although in the case of females they are argued to be seeking higher quality or more varied genes while relying on a cuckolded male for resources (e.g. Foerster, Delhey, Johnsen, Lifjeld and

Kempenaers, 2003). Women, however, usually look for commitment in a mate, ensuring access to his resources. In order to gain sexual access to a woman, therefore, most men have to agree to invest in her and any resulting children. This is not so restricting as it at first seems, since a man may be able to leave more children by only mating with one woman and caring for his children. The crucial factor is how many more children will survive to reproductive age and sire their own children if cared for by both parents as opposed to only by the mother. If a man is able to sire more children by being promiscuous, but almost all of them die because of lack of paternal investment (or are unable to acquire mates of their own in adulthood), then it is an advantage for a male to stay with one woman and see that his children are cared for.

This can be seen, most clearly, in a number of bird species where both parents are required to provide food and protection to the young. In the cases of these species, the father has no choice if he wishes to leave any offspring at all. The choice is to either invest in the offspring of one female or impregnate many females and allow the young to die through lack of paternal care (Westneat and Sherman 1993). Clutton-Brock (1991) has claimed that paternal investment in offspring will only arise when the number of offspring surviving to reproductive age when staying with a female is greater than the number of children surviving without paternal investment multiplied by the number of successful matings. If the situation is such that paternal investment is an advantage to males, then a monogamous reproductive system is the result. Kenrick and Trost (1987) claimed that the major purpose of a long-term relationship is to facilitate the raising of children and Barnard (2002) notes that divorce rates are higher amongst childless partners, even though such partnerships appear to be more

satisfied. Thus if the reason for long-term partnerships is to raise children, then it must be an advantage to both females and males to commit to such a mateship.

In species where biparental care is obligatory, it is easy to see why monogamy evolves. In humans, however, it is possible for women to raise children on their own or with the help of kin and for men committing to a long-term mateship with only one female may restrict his reproductive potential. An important factor that influences male decision-making is paternal certainty. Because humans cannot tell when females are most fertile and since fertilization is internal, a man cannot be one hundred percent sure that a child is his. One strategy a man can follow to try to ensure that he invests only in his own children is mate guarding. This however consumes considerable time. Male certainty of paternity is an advantage to both sexes: the more certain the male is, the more he is likely to invest in the offspring (Clutton-Brock, 1991; see also Betzig, 1989).

Female behaviour also influences the mating system adopted by humans. Their reluctance (compared to males) to engage in casual sex outside of a long-term relationship will make it difficult for men to follow a polygynous strategy. The extra costs of courtship make the costs of polygyny too great to be outweighed by its benefits, while the benefits of monogamy (e.g. continual sexual receiptivity and paternity certainty) increase the rewards of committing to a long-term mateship (Campbell, 2002).

An alternative advantage for males (although these explanations of the evolution of monogamy are not mutually exclusive) is that polygyny benefits men who are most

desirable and who control the most resources. Men who are less well endowed may face the prospect of zero reproductive success. In order to resolve this problem, some men may have to forgo the competition for multiple mates with the rewards of many children and instead commit to a single woman and invest in a smaller number of children he can be more certain are actually his (Geary, 2000).

The Consequences of Monogamy: Choosier Males.

Geary and Flinn (2001) also claim that coalition formation includes the involvement of nuclear and extended family. In humans, as well as other species, these structures facilitate the control of resources, which helps to support the offspring's long developmental period. They also claim that social networking (e.g. coalition formation) can be seen as a survival and reproductive strategy for each member of a coalition dyad, rather than as a benefit to the species as a whole, since the coalition enables the individual to access and control greater amounts of resources than could be done alone. Thus, it becomes an advantage for individuals to form partnerships, not only for rearing children but also to help to maximize resource control. This increased control of resources will, in turn, help to raise children to adulthood and thus help to pass on more genes from the members of the coalition.

If males are to form coalitions with females in order to increase the chances of their children's survival, they will be more selective in their mate choice, minimizing the chances of their investment being wasted (Geary and Flinn, 2001). Thus human males will be choosier over their mates than the males of other species due to their greater investment in any offspring resulting from a mating.

Evidence for males exhibiting greater selectivity in their mates has been presented by several authors. Firstly Schuiling (2003b) has claimed that fertile males can be in the presence of fertile females without sex being an imperative - which is not the case in most other animal species. This behaviour presumably evolved (at least partly) because human males were exercising selectivity in mating partners. The fact that several different authors (e.g. Buss and Schmitt, 1993; Sprecher, Sullivan and Hatfield, 1994) have reported that both females and males have stated certain preferences in their mates also shows that it is not only women who are selective in their choices of mates. Further evidence can be found in the reported findings of several studies claiming that both females and males alter their stated preferences depending on what qualities they feel they can offer a potential mate themselves (e.g. Waynforth and Dunbar, 1995).

Whom to Choose.

The traits that men and women prefer in mates have been well documented (e.g. buss, 1989; Buss et al., 1990; Sprecher, Sullivan and Hatfield, 1994). These preferences differ, however, not only between the sexes, but also depending upon whether the relationship being sought is short- or long-term. It appears that there are, in fact, two elements in human mate selection. First, a genetically desirable mate; someone who an individual would be prepared to reproduce with, on the basis of their genetic quality alone. This is indexed by health and descent from a "good" genetic line; plus evidence for parenting skills and fertility (Buss and Schmitt, 1993). The second element of mate selection is someone who is a supportive partner; someone who is

helpful, co-operative, has supportive kin and is a good 'ally'. A good ally needs a pleasant disposition and good ability to co-operate. These two elements are not alternative but complementary. Someone searching for a short-term relationship may only look for the qualities demonstrated by a 'sexy' (good genetic quality) partner, while for a long-term partner they will look in addition for traits shown by a 'friendly' partner.

Selecting a Mate for the Visually Impaired.

The best cues to a sexy mate are visual e.g. age, facial symmetry and body shape. Other cues are also tactile, such as skin quality, but it is not usual to be able to touch a person's skin before getting to know them first and skin quality is usually detected visually. Smell (or pheromones) might play a role, but this is a short-range cue (although longer range than touch) and may not be much use in crowded situations where a number of people's smells are mingled. An important cue available to VIP is auditory. The voice may convey information about the person's social class, education and locality of birth as well as age (see Chapter Two). The problem here is that it requires exposure to their voice.

Access to cues to a friendly partner, on the other hand, is not restricted by lack of sight. Information indicating a good ally requires a person to get to know a potential partner. Compared to visual evaluation, it is a time consuming process but, because it requires talking and listening to another individual, it is something a VI person is competent to do. The problem for VIP is initially meeting the person in such a

circumstance that a conversation can be initiated and possibly an informal agreement made that the process will be allowed to continue at a later date.

If this is so, then VIP will have difficulty in selecting a sexy mate but will not be in any way disadvantaged in the matter of selecting a good ally. It may even be that by concentrating on the second element of a partnership, VIP relationships may well have a greater chance of lasting for longer since it is founded on the basis of friendship and trust, rather than the principle of physical attraction.

The parental investment model (Trivers, 1972) suggests that there may be a gender difference in which of the two elements a person will look for. Since human males are often involved in parental duties, however, it would be fair to suggest that women and men will look for both sexy mate and supportive partner qualities in their potential partners (see Waynforth and Dunbar, 1995). This idea is supported by the findings presented by Kenrick, Sadalla, Groth and Trost (1990). According to their "qualified parental investment" model (i.e. where males invest in children) there should be less of a sex difference in the case of selecting a long-term partner. In their sample, although women were more selective overall and when selecting a short-term mate, there was no sex difference in acceptable level of criteria when it came to choosing a long-term partner.

Sexual strategy theory (Buss and Schmitt, 1993) also predicts that looking for a sexy mate would not only be the province of males, nor would looking for a supportive partner be solely a female goal. These authors claim that there are circumstances in which a woman would look for a "short-term" mate or, in my terms, assess a potential

partner for "sexy mate" qualities. I would suggest that women and men look for both sets of qualities in a potential partner. There will, however be a difference in the ratio of the two elements depending on what sort of relationship is sought (short- or long-term). The two extremes of relationship give an example of this. Firstly, a person looking for a long-term relationship would need to assess a potential partner for both supportive partner and sexy mate qualities; while an individual looking for a short-term mate (perhaps a "one-night stand") would only look for qualities indicating a sexy mate.

Buss and Barnes (1986) also found that the ten characteristics rated as most important in a long-term partner included: "good companion", "considerate", "honest", "affectionate", "dependable", "intelligent", "kind", "understanding", "interesting to talk to" and "loyal". These were replicated cross-culturally by (Buss (1989). These are qualities indicative of a supportive partner. Similarly, in the last chapter, the two most valued characteristics in a prospect mate, over all the participants, were "sense of humour" and "mutual love and attraction". Again these are two qualities that would be indicative of a good long-term ally.

If a visually impaired person cannot visually detect cues to fertility and health and there are no reliable non-visual cues, then it is still possible for her or him to assess a potential partner for supportive qualities. If Miller's (1997) sequential model of mate selection is correct, then VIP should give a higher priority to traits indicative of a supportive partner. That is to say that they do not simply disregard characteristics which indicate physical attractiveness but instead look for evidence of the prospective mate being a congenial partner first. This was demonstrated in Chapter Four, where

the results showed sighted participants gave facial attractiveness greater priority than the VI participants. VI participants also seemed to give higher priority to some personality traits indicating a good ally.

The results from chapters Three and Four suggest that VIP are not using physical attractiveness as a "first hurdle" in a sequence of assessments of potential partners. Rather they are leaving it until a later point in time, possibly when they can find out about it through some alternative method. Meanwhile, the initial attraction for VIP could be triggered by another factor or factors, such as a quality in the person's voice, an olfactory cue or some element in the potential mate's personality discovered through talking to her or him. These other factors are also available to and may be used by people without a visual impairment, but perhaps they are less noticeable to investigators due to the overwhelming nature of visual indicators.

In summary, humans have evolved as a social animal whose large brain and upright posture have resulted in a prolonged period of development during which the infant is reliant on an adult carer (Geary and Flinn, 2001). Human males are able to increase their chances of a successful mating by forming a coalition with a single female, thus increasing sexual access to her, increasing both paternity certainty and the chances of children surviving to reproductive age (Clutton-Brock, 1991; see also Betzig, 1989). Human males also pass on benefits to their offspring such as social status and established social networks, again increasing offspring viability and competitiveness. It is likely that identifiable traits will coevolve with paternal investment and with fidelity so that individuals who will commit to a relationship can be identified. Individuals who demonstrate such traits and/or prefer mates who display them, will

then be at an advantage in obtaining a friendly (long-term) partner and thus will be able to take advantage of the benefits of forming a successful alliance.

While evolutionary psychology has focussed on physical features associated with mate preferences (such as body shape, facial features and symmetry), further work needs to investigate the concept of cues to a long-term, supportive ally. In the following chapter, the factors that people (both visually impaired and sighted) look for in meeting and selecting an actual long-term partner will be investigated.

CHAPTER SIX.

BLIND DATE: DIFFERENCES IN HOW VISUALLY IMPAIRED AND SIGHTED PEOPLE'S RELATIONSHIPS DEVELOP (STUDY 3).

From Chapter Three and Chapter Four it has been determined that although sighted and visually impaired people rate physical attractiveness as equally important, VIP give less informational priority to physical attractiveness than sighted people. That is to say VIP look for other qualities in a potential mate before attending to the traits with which sighted people are more concerned. It has already been proposed that this finding does not necessarily run counter to the evolutionary models of human universal mate preferences, instead it has been used to support the model of human mate selection put forward by Miller (1997). In this sequential model, Miller allowed that the order in which traits were assessed depended on the assessor's circumstances (which could change spatially or temporally). Thus it would seem that visually impaired people have different priorities to people without a sight impairment, when making a mate choice and these different priorities reflect the difficulties in assessing visual cues to partner desirability. The problem that a visual impairment brings to a mate choice situation can therefore be avoided by sequencing cues in such an order that visual indications of partner desirability are tested later, when information can be gathered in a different modality.

At the end of the last chapter, the question was posed as to what visually impaired people actually look for in a mate and how and where they gather such information. In the first part of this study it is hoped that a tentative answer to this question may be

found. In order to do this, a questionnaire was sent out to both visually impaired and unimpaired people asking about the longest relationship they had experienced and exploring different aspects of that affiliation. It is hoped that the responses will demonstrate differences in the way in which VI and sighted people initiate a long-term relationship. As well as this, it is also hoped that some light will be shed on any differences between where visually impaired and sighted people meet their partners, how the initial contact is made and how the resultant relationship progresses.

The participants in this investigation are a new set of visually impaired and sighted people who are asked questions concerning real-life partners that they have been with for more than three months (whether they are currently with them or not). Many investigations into mate preferences in humans have been concerned with hypothetical "ideal" partners. One criticism that can be levelled at such studies (including the first two investigations reported above) is that they do not deal with "real-life" situations. Buss (1989) tried to answer such criticisms by comparing his findings from the cross-cultural study with actual demographic data from the same countries. For example, having asked his participants what age difference they would like between themselves and their partner, he looked at the relative ages of people marrying in that country. He found little difference between the hypothetical and actual data, thus validating the answers given about ideal partners. In the same way, this study now investigates real-life partners in the hope it supports findings already reported in the previous chapters.

Murstein (1971) proposed a three-stage model of marriage choice, which agrees broadly with the theory put forward by Miller (1997). Murstein's model also

proposes that there are a number of stages to be completed before a decision can be made about a potential partner. Murstein differs from Miller, however, in that his stages are fixed in order, whereas Miller's theory allows individuals to alter the sequence of stages that she or he goes through before a decision can be made. According to Murstein, there is firstly a "stimulus" stage in which at least one of the members of a potential partnership becomes interested in the other member. The stimulus or stimuli are usually physical attractiveness (a visual cue), but may include reputation, as reported by a third party, smell or another factor that attracts the attention of at least one member of the potential partnership. Once the potential partners have met, they talk and discover more about each other's values. This second ("value") stage may take some time, as it requires lengthy investigations into the lifestyle and personality of the other person. Finally, when both people are satisfied with each other's values, the third ("role") stage is reached in which the testing concentrates on the prospective roles played by each of the people involved. They are evaluated as potential wives or husbands, mothers and fathers. This too, takes time and requires the disclosure of more intimate details. During the value and role phases of the courtship, both potential partners will disclose increasingly personal information. This disclosure results in a form of positive feedback; as one person discloses information to the other, the other experiences a boost to her or his self-esteem as she or he feels worthy to receive such information. This partner then feels more inclined to reciprocate in disclosing intimate details of her or himself. This raises the self-esteem of the first partner who is now inclined to disclose even more personal information and so on.

It seems obvious that visually impaired people would have to use different stimuli to those without a sight impairment in the first stage of Murstein's process, since they cannot use visual indications as a cue to a potential partner. (They can, of course, be aware of other people's opinions of a potential partner's physical appearance.) If VIP look for personality as an indication of partner desirability, then at least the first two stages (if not all three) may become merged. The reasoning behind this is that, as seen in the last study, VIP have a different order of priority in the features they look for in a potential partner. Both sighted and VI participants claim that they look for humour and mutual attraction in their partners above all else and list facial attractiveness as being a less immediate priority (although sighted participants gave facial attractiveness a higher priority than VI participants). It should be said, however, that to the extent that the first stage of Murstein's process is unconscious, asking the order in which a person would like to acquire information about a prospective partner might well not elicit facial attractiveness as a top answer. If VIP prioritise other traits, as proposed in earlier chapters, then it is most likely that facial and general physical attractiveness are relegated to a less prominent position for VIP. Thus, leaving physical features to a later date, they make a decision on whether or not they are interested in a romantic relationship based on information gathered by talking to a potential partner, rather than on looks alone.

Although Murstein does allow for other stimuli (e.g. reputation) to be used in the first stage, he claims that there is no real replacement for being attracted to another person purely on the basis of visual cues. Thus VIP will be at a disadvantage in choosing a mate, as compared to sighted people. In addition, despite the collapsing of the stages, VIP are unable to take "short cuts" in their assessment of another person in the form

of using visual cues and so are thus likely to take longer before committing themselves in a relationship.

If, as suggested here, VIP do rely on other stimuli as a basis for attraction before being concerned with physical attractiveness, then VI and sighted people may differ in where they first meet their partners. It is proposed here that since VIP need to talk to a prospective partner before becoming attracted to them, they will be more likely to have met their partner in a situation that allowed a relationship to develop. For example, they are likely to meet in educational settings or in the work place, where there is time to get to know each other. Sighted people, on the other hand, will be able to meet their partners in more social circumstances, such as at a party or in a pub.

In the second part of this study, the way in which a relationship develops over time is investigated. This includes how the relationship is initiated, how it continues and how long each stage lasts. Again the differences between sighted and visually impaired people is examined, in order to investigate how visual cues influence developing relationships. I specifically examine whether a visual impairment increases or decreases the length of time between each stage of the relationship.

In the recent psychological literature on human mate choice, selection has been studied in terms of features such as facial symmetry (e.g. Shackelford and Larsen, 1998), body shape (e.g. Singh, 1993), pheromones (e.g. Scholey, Bosworth and Dimitrakaki, in press) and age as identified by cues such as energy levels, behaviour, skin and hair quality (e.g. Buss, 1989). Many of these cues are signals of genetic quality, which are of particular relevance to short-term mate choice. In the last

chapter I discussed evidence that suggested that long-term relationships were a strategy for raising children to adulthood, since human children complete a larger proportion of their development as infants and are reliant on adult protection and help during this time. Long-term cooperation requires characteristics that are more similar than different in the two sexes. In studies by Buss (1989) and Buss et al. (1990), however, similarities between the sexes were overlooked yet traits indicating a preference for co-operative partners were given the highest ratings by both sexes.

It appears that there is a dimension of mate choice that reflects the co-operation that is required by the parents in order to raise children. Because of the slow development of human children, childcare extends over a protracted period of time. Potential partners need to demonstrate not only that they are willing to take part in a co-operative partnership, but also characteristics that indicate that they are prepared to stay in that partnership for the long-term. This would mean that both sexes would look for partners who were loyal, trustworthy and who displayed traits indicating a dependable character. As well as this, characteristics suggesting good parenting skills should be sought (e.g. observing a potential partner with children from another relationship or relatives).

Characteristics indicating supportiveness and being a good ally may be personality traits (such as loyalty) or behaviour (such as observation of how a prospective partner behaves with other people) rather than physical features (such as good looks). Because of this, it may take some time to identify them in a potential long-term partner. The process will entail observing, talking and "getting to know " the target person. This would mean that a long-term relationship would pass through a series of

phases of increased intimacy as proposed by Miller (1997) and Murstein (1971). In this part of the study it is hoped to demonstrate that there is, indeed, a systematic change of emotions and behaviour in a relationship as greater intimacy is achieved. Since it is as possible for a visually impaired person as a sighted person to perform the process of finding a long-term alliance in which to raise children, they should be at no disadvantage in finding a long-term mate. Further, since they are not distracted by physical appearance, it is possible that they are more likely to form an alliance with another person on the basis of personality traits. This would manifest itself in a greater speed of growing intimacy in a relationship in which at least one of the participants has a visual impairment.

Hypotheses.

1. Visually impaired people are more likely to meet their partners in education or in other circumstances that allow them to get to know them before becoming romantically involved. In contrast, sighted people are more likely to meet their partners in social situations (e.g. parties, in pubs, etc.).

2. Visually impaired people are more likely to be introduced to their partner or (if the partner is sighted) their partner will introduce her or himself. In contrast, sighted participants are expected to introduce themselves to their partner, demonstrating that people without a sight impairment are more likely to become romantically interested in another person due to visual stimulation and that VIP are more likely to take a more passive role in the initial stages of the relationship.

3. It is hypothesized that the visually impaired participants will take a longer time to start their relationship than the sighted participants will, since the sighted respondents will be relying on visual cues, while VI respondents will take time to get to know their prospective partner. Later in the relationship, however, both the sighted and visually impaired respondents are expected to report a similar length of time between stages in their relationships, indicating that the sighted participants are also trying to get to know their prospective partner.

4. The sighted participants will mention physical appearance more often than will the VI participants at the initial stages of the relationship, but this difference will not be apparent as the relationship progresses – indicating both the fact that visually impaired people can find out information about a partner's physical appearance from others and that sighted people will take longer to find out about their partner's personality and character.

Method.

Participants.

In order to reach a large group of visually impaired people, it was decided to contact them through a series of e-groups. E-groups are collections of people who are able to send messages via e-mail to the whole group at once. They are usually based upon a particular topic, which may be a large area of discussion (such as relationships, books, etc.) or a narrower topic area (such as a particular computer programme or a specific television series). A number have been set up specifically to serve visually impaired people who have access to a computer and e-mail. One advantage is that since it is based upon contributions submitted by e-mail, the members of the groups can be

resident anywhere in the world. One disadvantage is that - common with all questionnaire studies - there is no way of knowing if replies elicited in this manner are truthful or not.

Sixty-three visually impaired people returned questionnaires with enough information to be analyzed. Forty-five were female and eighteen were male. Forty-four sighted respondents also returned questionnaires. Of the sighted cohort, thirty-one were female and thirteen were male. Mean ages and ranges of age for each of the sample populations are shown in table 6.1.

Table 6.1: Age Range and Mean Ages of Different Study Populations.

	Sighted Female (n=31)	Sighted Male (n=13)	VI Females (n=43)	VI Males (n=18)	Total Female (n =54)	Total Male (n=31)	Total Sighted (n=44)	Total VI (n=61)
Age Range (Years)	18-44	22-63	17-58	27-74	17-58	27-74	18-63	17-74
Mean Age (years)	32.7	43.5	39.0	40.7	49.8	41.9	35.9	39.5

Although there were sixty-three visually impaired and forty-four sighted participants, not all respondents gave analyzable answers to all of the questions. Thus the number of responses used in analysing each question varied. Although email addresses do not always state their country of origin, answers were known to have come from the United States of America, Scotland, New Zealand and Australia. All replied using good English and must therefore be assumed to use English as a first language. All must have been computer literate to at least a small extent and have had access not only to a computer with e-mail capacity, but in the case of VIP also to the software that enables visually impaired people to use computers (i.e. text to speech or text to Braille software).

Procedure.

A list of e-groups that were designed for visually impaired members was found on a website. As many of these e-groups as possible was then subscribed to (see Appendix 1 for a list of the e-groups used in this investigation). The choice of which e-groups to subscribe to was made on the basis of getting as wide a selection of interests (and thus as wide a variety of people) as possible. Copies of the questionnaire (see Appendix 2) were then posted to the e-groups, before unsubscribing from the list. Respondents were asked to send their answers directly to the investigator's own e-mail address, rather than to the e-group as a whole. This avoided respondents viewing each other's replies and being influenced by each other's answers and, more importantly, maintained confidentiality, thus increasing respondents' willingness to answer truthfully.

In order to provide a control sample of sighted respondents, other e-groups (not designed to be used by visually impaired members) were also contacted. Initially, attempts were made to subscribe to a list of e-groups that was provided on the same website from which the VI specific e-groups were taken. These e-groups were not VI specific but were of interest to those with a visual impairment. Unfortunately, this list was somewhat out of date and only two of the e-groups were actually still available at the addresses given. These two were subscribed to. In order to supplement the number of non-VI e-groups, a copy of the questionnaire was posted on all of the bulletin boards offered by Google Groups.com. Many of these however were moderated and the moderators did not allow the questionnaire to appear on their boards. There were few responses from this method (five in total) and so I contacted a number of friends who agreed to forward a copy of the questionnaire to anyone they

had an e-mail address for. Although this was not an ideal situation, it arose through the need to acquire sighted respondents for this study.

Instrument.

The questions included in the questionnaire were designed to probe into the different stages through which a relationship might develop. The participants were asked to think of their longest romantic partnership where a "long-term relationship" was defined as one that had lasted at least three months. Questions then asked about each stage in order, progressing from the initial meeting to marriage. Participants were instructed to answer only those questions that were applicable to them. Thus if a respondent had cohabited with her or his partner, but had not become engaged or married, then she or he did not answer the questions related to those latter two stages. Only heterosexual partnerships were considered in the analysis. Only two respondents answered questions about a homosexual partnership and this was too few to treat homosexual partnerships as a separate group.

The questionnaires used for both groups of respondents were basically the same. Question eighteen (which asked the participant to discuss any differences that her or his visual impairment had made to the relationship) was not included in the questionnaire given to sighted respondents.

Another alteration was made to Question Three. VI participants were asked if they were either partially sighted or totally blind in order to determine if partial sight loss would make a difference to answers given. In the case of sighted respondents, the question asked if the respondent had any visual impairment and was designed to make

sure that no visually impaired respondent was classified and analyzed as a sighted participant.

Results.

Returned questionnaires were coded in terms of respondents' gender and sight condition and the data were entered into the S.P.S.S. statistical package.
Where a question asked for time or duration (e.g. "How long was it before the first date or first kiss?") the answers were converted into number of days. A week was held to be seven days, a month thirty days and a year was three hundred and sixty-five days. The term "couple" was taken to mean two so that an answer of "a couple of weeks" was converted into fourteen days. The term "immediately" was recorded as zero days. The first three questions sought information on age, gender and the presence or extent of visual impairment.

The sample was very small and thus chi-square tests were difficult to use. In order to try to avoid such a problem, categories were merged (where it made sense) to obtain expected values greater than five. Where this was not possible, the data are described, but inferential statistics were not used.

Question Four ("Where did you first meet your partner?").

Participants were allowed to answer this question freely and the responses were categorized for the purposes of analysis into four categories: work, education, social and other. A chi-square test revealed no significant effect (chi-square = 0.83, df = 3), indicating that there were no differences between where VI and sighted respondents met their partners. The data gathered by this question is summarized in Table 6.2.

Table 6.2: Where Respondents Met Their Partners.

Category	Sighted Respondents (n = 37)	VI Respondents (n = 60)
Education	8	13
Other	7	16
Social	17	24
Work	5	7

Question five asked about the length of the relationship, which the respondents were reporting and was designed to check that the respondents were, in fact, discussing a relationship that had lasted for more than three months (the criterion for inclusion in the study). Thus the next question to be analyzed was number six.

Question Six ("How did you meet your partner?).

This inquiry was concerned with how the participants and their partners actually first talked to each other - specifically how they were introduced. Table 6.3 summarizes the results. A number of the respondents omitted to answer this question so numbers of participants were reduced to 43 visually impaired and 31 sighted responses.

Table 6.3: How Respondents and Their Partners Were Introduced.

Category	Sighted participants (n=31)	VI participants (n = 43)
Introduced by someone else	23	20
Respondent introduced self, partner introduced her/himself or mutually introduced themselves	8	23

A chi-square analysis revealed that sighted participants are more likely than the VI participants to be introduced to their partner by someone else (chi-square=5.67, df=1, $p<.02$). This was unexpected, since it was thought that the VI participants would be

more likely to be introduced to their partner or for their partner to introduce her or himself. This indicates that VIP are less passive in the initial stages of selecting a mate than might be assumed. Some of the VIP sample, however, was partially sighted. This would mean that they might have had enough sight to be able to identify a potential partner, or at least see that there was someone there to talk to.

Question Seven ("Did you know anything about your partner before you met her/him? If so, what and how did you know about them? Did this information make any difference to you when you met her/him?").

Tables 6.4 and 6.5 summarize the data gathered from the answers to this question. Some of the responses did not include all the requested information so the number of analyzable responses was reduced to forty-four answers from sighted participants and fifty-three from VI participants for the first part of the question (Table 6.4) and thirty-six sighted and fifty VI participants for the second part (Table 6.5).

Table 6.4: Whether Respondents had Prior Knowledge About Their Partner Before Becoming Romantically Involved.

	Sighted (n = 44)	VI (n = 57)
Knew nothing about partner	29	33
Knew something about partner	15	24

A chi-square test on the data presented in table 6.4 was not significant (chi-square = 0.67). Among the sighted group 65.9 % had no prior information compared to 57.9 % among the visually impaired group.

The data in Table 6.5 could not be analysed by chi-square because some of the cell sizes were too small. Thus no statistical analysis was possible on this data. Visual

inspection, however, suggests that all the participants who claimed to have had knowledge of their partner before meeting them and making a decision to become romantically involved, also claimed that their decision was affected by their prior knowledge. Of the participants who were affected by prior knowledge of their partner, the majority (76.5 % of visually impaired and 85.7 % of sighted participants), unsurprisingly, stated that the effect was positive in nature. Table 6.5 suggests that, of those who had prior knowledge, a higher proportion of sighted participants claimed a positive effect of prior knowledge than the visually impaired group.

Table 6.5: What Effect Information Known About Partner Had on Respondent's Feelings about Their Partner.

Effect	Sighted respondents (n = 36)	VI Respondents (n = 50)
Nothing known about partner	29	33
Negative effect	1	4
Positive effect	6	13
No effect	0	0

Question Eight ("What were your feelings about your partner when you first met her/him? What was it about her/him that first caught your attention? Was there something about her/him that stood out from other people?").

Question eight was designed to probe into what it was about their partner that initially attracted the respondent at the point of meeting. A qualitative analysis of the responses showed a number of common answers that could be categorized into different groups. These categories were present in responses from both visually impaired and sighted participants, although there were also some that were unique to only one of these two groups. Females and males were both represented in most of the categories, although not necessarily in both sight conditions. A summary of the

major categories and the number of times they were cited by participants from each group is shown in Table 6.6.

Table 6.6: Summary of Categories in Question Eight.

Category	Sighted Female (n=30)	Sighted Male (n=12)	VI Female (n=43)	VI Male (n=17)	Total Female (n=73)	Total Male (n=29)	Total Sighted (n=42)	Total VI (n=60)
Different	6	1	2	0	8	1	7	2
Easy to talk to	4	2	4	0	8	2	6	4
Interests in common	3	4	4	2	7	6	7	6
Negative initial impression	0	0	3	1	3	1	0	4
Other	4	0	10	7	14	7	4	17
Personality	8	6	24	5	32	11	14	29
Physical appearance	14	6	4	2	28	8	20	6
Sense of humour	5	0	10	2	15	2	5	12
Shy/ nervous	3	0	0	1	3	1	3	1
Visual impairment not an issue	0	0	5	3	5	3	0	8
Voice	1	0	4	3	5	3	1	7

Unsurprisingly, details of the partner's physical appearance seem to be the most commonly cited factor in the initial meeting and mostly by the sighted participants. This category not only includes phrases describing the partner's physical attractiveness, but also comments on their clothing, height and other elements of physical appearance. Initially surprising is the fact that six visually impaired respondents mentioned physical attractiveness. Further analysis revealed, however, that of the four VI females, who cited physical attractiveness, three were partially sighted and only one described herself as "blind". One of the two VI males who

mentioned physical attractiveness was also partially cited and the second merely said that he was "physically attracted" to his partner.

There were a reasonably large number of both sighted and VI respondents who claimed that their partner's height was a factor in initial attraction. No males mentioned height in describing their partner, but this is not surprising, since no other investigators have reported height as being a characteristic listed by males as a desired feature in a mate. All female responses that included height references indicated that they valued tall men: no one believed that they were attracted to their partner because he was short. The fact that so many visually impaired participants were influenced by their partner's height is explained by the fact that height is one factor easily discernible without sight. Chapters Three and Four concluded that physical appearance of a partner does matter to a VI person, but that other factors are considered to hold a more significant role earlier in the assessment of a prospective partner. With this in mind, it is surprising that physical appearance is mentioned by VIP as being so influential at such an early stage of a relationship, rather than being surprising that it is mentioned by VIP at all.

An interestingly large category of answers referred to "personality". This included a series of different characteristics. (Sense of humour, shyness and easiness to talk to were not included in this category but rather as aspects of interpersonal interaction and these were analyzed as categories in their own right.) Both visually impaired and sighted participants gave responses in the personality category (females and males being represented in both populations). Firstly, there were a series of personality

characteristics used by a small number of respondents. These included items such as "openness" (e.g. sighted participant 41), "calmness and attentiveness" (e.g. sighted participant 42), "childish" (e.g. sighted participant 43), "innocent but determined air" (e.g. sighted participant 37), "warm and outgoing" (e.g. sighted participant 26), "self-confidence" (e.g. visually impaired participants 16 and 59) and "steady and dependable" (e.g. visually impaired participant 49). In contrast to these specific items, some responses were very general; a few responses simply named "personality" as a trait that caught their attention. For example, visually impaired participant 34 claimed that "My feelings were overwhelmingly positive. His *personality* caught my attention. He stood out from others because he presented so sincerely".

A second set of personality characteristics, which was mentioned by a small group of participants, was described variously as the partner being "gentle", "caring", "kind" or "loving". For example, sighted participant 17 described her partner as being "very kind" and visually impaired participant 60 stated that his partner's "loving care for people" was the characteristic which most attracted him when they first met.

Also included in the personality category were responses describing intelligence as an important factor in initial attraction. For example, visually impaired participant 3 and sighted participant 23 believed their partners "sounded intelligent" and "seemed to be intelligent" respectively. It appears that the male participants (of both VI and sighted populations) were not initially attracted by their partner's intelligence as much as the female participants. Only two male answers were placed in the intelligence sub-category: visually impaired participant 28 claimed that his partner "always talked and

sounded so intelligent" and visually impaired participant 52 stated that his partner was "smart". This relative lack of male interest in intelligence may be interpreted as women being more concerned with their partner's personality and testing their partners more rigorously than males would, since females have more to lose from a poor mating choice. This suggestion will receive support if other personality factors are found to have a similar sex difference.

One subcategory of personality that contained only visually impaired participants (both female and male) was politeness (e.g. visually impaired participants 30 and 52). Again the fact that only visually impaired participants used the word "polite" in connection with initial attraction, suggests that visually impaired people's need to talk to people before making a mate choice (conscious or unconscious) is made easier when the other person is polite and receptive.

A small number of respondents simply described their partner at the first meeting as being "nice". These responses were also treated as a sub-division of the personality category. For example, visually impaired participant 55 described her partner as being "shy but nice" while sighted participant 3 simply stated that "she was nice" when describing their first date. The use of the word "nice" may indicate that they either could not remember what their specific impressions of their partner were on the first date, or that they were unaware exactly what it was about the partner that attracted them. This is, of course, one of the problems of investigating issues of mate preferences---choices made in this area of life are unconscious and may often be difficult to express in words.

The third major category (after physical appearance and personality) used to explain why a prospective partner stood out from the crowd was "sense of humour". Included in this category were answers that described the partner as being "lots of fun" or simply "funny". For example, sighted respondent 23 answered that she thought that her partner " had a good sense of humour" at their first meeting. Visually impaired respondent 58 described his partner, amongst other things, as being "fun". Only one answer from the male participant group could be included in the sense of humour category: visually impaired respondent 58 claimed that his partner "seemed like a fun person".

The fourth category was "shy" and contained all answers mentioning shyness, nervousness or a similar trait. An example is visually impaired participant 45, who claimed that his partner "was a very shy person". In fact, one response (sighted participant 28) stated that her partner "was very quiet and you could say rather shy. I think this made the fact that he communicated with me more noticeable. Although he didn't say much he sort of made me feel special by the way he looked at me." This suggests that the partner's normal shyness to others but not toward her made it all the more evident that there might be some romantic feelings involved. The fact that most of the answers included in the shy/nervous subgroup were from visually impaired participants suggests that sighted people may not notice a change in a prospective partner's character (either from shy to out-going or vice versa) because they are more interested in her or his physical features. An alternative explanation is that on a first meeting it is difficult to judge how a person normally behaves, unless their behaviour

with other people at that time is observed; if so, it may be that visually impaired people are more observant of a prospective partner's behaviour with others than are sighted people. Alternatively it may be that shyness suggests a trait such as sincerity. If VIP feel more vulnerable, shyness is a reassuring behaviour in another person.

Contrary to the shy/nervous category, a number of respondents claimed that an important factor was that their partner was easy to talk to or communicate with. Being able to talk to a prospective partner and find out about her or him is an important part of attraction. Included in this category were answers that claimed partners were interesting, interested in the respondent or friendly. These factors were grouped together because they share the idea of ease of communication. Examples of these answers can be seen in VI participant 3 ("I liked the way he articulated himself. He sounded intelligent and yet also very polite and interested in you at the same time") and sighted participant 22 ("friendly, easy to talk to and someone with similar interests that it would be easy to live with. The romance came later").

Common or similar interests was the sixth category of reasons and an example can be seen in the response given by sighted participant 33 who felt that she and her partner had a lot in common (they were "both sensitive"). Visually impaired participant 9 claimed that initially he thought his partner was "an airhead", but on talking to her found out that they had a mutual interest in similar books. This latter example not only demonstrates the importance of "similar interests" but also the value of talking to a person, finding out about her or him before making a decision (see below).

Another category that captures a small number of responses was labelled "different". This category comprises answers, which indicate that the partner caught the respondent's attention because they seemed different in some way. This includes

examples such as sighted participants 12 (who described his partner as being "exotic - a south American beauty!") and 9 (who claimed that her partner "was not my type"). Visually impaired participants also cited difference as a reason for being attracted to their partner: visually impaired participant 12 said that his partner responded to his sense of humour "in a way different from most women I know". There were no female visually impaired respondents, however, who referred to their partner as being different in any way; the reason for this is unclear.

There is a small but important group of responses in which respondents explain that they had negative feelings about their partners when they first met. Both visually impaired and sighted respondents are included in this group, as are females and males. A typical example of this category can be found in VI participant 4. Here the participant described her first meeting with her partner in high school. She claimed that their first meeting was far from friendly; she thought he was "very immature and too eager to fit in with the crowd" although she admitted that she admired his adventurous spirit. Visually impaired participant 7 stated that she first assumed her partner only wanted to "hit on any girl" but during their first meeting she came to realize that he was really sensitive to her blindness: "He had no problem with keeping a physical contact with me so I knew where he was when we were dancing and he was very careful about how he treated me. I could feel him trying to understand what the world felt like to me. This really touched me that someone would think this way". Negative feelings were also experienced by sighted participant 5. He claimed that at first meeting he felt only "polite interest, but nothing more" towards his partner. Members of this group demonstrate the importance of gathering information about a prospective partner before making a mating decision; each started with negative

feelings about a prospective partner, which altered positively after gathering information.

The penultimate category in this analysis was mainly found in responses from visually impaired participants: the quality of the partner's voice. A number of VI and only one female sighted (participant 17) answers involved statements such as "She had a great sounding voice" (visually impaired participant 17) or "I liked the sound of his voice..." (visually impaired participant 2). As physical appearance is to sighted people, the voice is often the first feature that a visually impaired person will know about another. So, as physical appearance is mentioned by a reasonable proportion of fully sighted participants (and some of the partially sighted ones as well), so too is the voice cited by a reasonable number of visually impaired respondents.

There was one final set of items that, by their nature, were mentioned only by visually impaired respondents, namely that they were attracted to their partner because she or he seemed to have "no problem being around blind people" (visually impaired participant 2). VI participant 21 summarizes the general idea, when she describes her partner as being "...the first man to see right through my blindness to me as a person". Statements such as these were not restricted to the females within the visually impaired population. Visually impaired participant 64 stated that he initially did not think "...that the acquaintance would be anything more than transitory", but then qualified this statement by continuing that "...I was, however, impressed that my blindness was not an issue". This is a further demonstration of a visually impaired person's need to be able to talk to another person before making a mating decision. It is easier to become friendly or romantically involved if the able-bodied person is not

unduly concerned with the disabled person's disability. Such a preoccupation suggests that the individual is being seen as a disabled person rather than a person with a disability.

A residual "other" category was used for answers that did not fit into any of above categories. Examples of members of this category include sighted participant 4 who was impressed that her partner was able to beat her at pool and visually impaired participant 45 who stated that his partner was wearing a perfume "that smelled pretty good".

The analysis of the answers given to question eight showed a distinct difference between the visually impaired and sighted groups in the factors which were the initial attracting feature of the participants' partners. A greater proportion of the sighted group named "physical appearance" (46.6 % versus 10.0 %) as being the feature of their partner that initially drew her or him to their partner; while a greater proportion of the VI participants claimed that "personality" (48.3 % versus 33.3%) and "sense of humour" (20.0% versus 11.9 %) had been influential in initial attraction. The fact that a third of the sighted participants also cited "personality" as a factor shows that assessing the personalities of potential partners is certainly not restricted to visually impaired people.

The finding that "physical appearance" as an initial attracting feature was more prevalent amongst the sighted group than amongst the VI group, together with the fact that VI participants being more likely to be included in the "sense of humour", "personality", "voice" and "other" categories can be seen as support for the results of

Chapter Four where it was demonstrated that visually impaired people assessed their potential partners using a different order of traits. Here it can be seen that visually impaired people do, in fact, rely on information about a potential partner other than physical appearance in the initial stages of a relationship.

Question Nine ("How long was it after meeting your partner before you realised that there was something special about her/him and/or that you were attracted to her/him?").

This question, along with subsequent ones, was designed to determine if the mating strategies in sighted and visually impaired populations resulted in a different rate of relationship development. In this case, the question is concerned with how long it took before the respondent realized that there was something special about her or his partner. An analysis of variance was performed on the data using a two by two between groups design (gender by sight condition). Neither the main effects nor the interaction were significant. The details of this analysis can be seen in table 6.7 below.

Table 6.7: Mean Time Taken Before Participants Realized There was Something Special About Their Partner.

		Mean time taken (days)	Standard error
Male	VIP	132.857	78.201
	Sighted	30.375	103.450
Female	VIP	191.274	52.553
	Sighted	64.769	57.384

Question Ten ("How long after meeting your partner was it before you went on a date with her/him? Where did you go on the date? Whose idea was it to go on the date and who suggested where you went?").

The aim of the first part of this question was to investigate whether there was any difference between the speed at which relationships develop in sighted and visually impaired populations. A two by two analysis of variance (gender and sight condition) was carried out on the data gathered for this part of question ten. No significant differences were found. The details of the analysis are presented in table 6.8.

Table 6.8: Mean Time Taken Before Partners Went on A Date With Their Partners.

		Mean time taken (days)	Standard error
Male	VIP	64.667	378.217
	Sighted	142.944	378.217
Female	VIP	503.774	203.789
	Sighted	131.350	253.716

The second part of this question was concerned with determining where the respondents and their partner went on their first date. Some of the answers did not contain the appropriate data and so participant numbers were reduced to 29 sighted and 41 visually impaired answers. Table 6.9 summarizes the data gleaned from this question. The data were subjected to a chi-squared test. There was a significant difference in where the visually impaired and sighted participants went on there first date (chi-square = 19.99, df = 2, $p < .0001$). From table 6.9 it can be seen that a greater proportion of the sighted participants went to some form of entertainment (cinema, theatre, concert, etc.) than did the VI participants (27.6 % versus 19.5 %); a roughly equal proportion of the two groups went on their first date to a pub or restaurant or a meal somewhere (51.7 % of sighted and 53.7 % of blind participants);

and a greater proportion of VI participants were included in the "other" category than were sighted respondents (20.7 % versus 26.8 %).

Table 6.9: Where First Date Took Place.

Category	Sighted Participants (N = 29)	VI Participants (n = 41)
Entertainment	8	8
Pub/restaurant/meal	15	22
Other	6	11

The final part of question ten asked for information on who it was that had suggested going on the date. Table 6.10 summarizes the results from this question. Because of missing responses, participant numbers were reduced to twenty-seven answers from sighted and thirty-three from visually impaired respondents.

Table 6.10: Who Asked for a Date?

	Partner Asked For A Date	Respondent Asked For A Date	Date Mutually Asked For
Sighted Participants (n = 27)	12	11	4
VI Participants (n = 33)	18	14	1

A chi-square test was performed on the data, which was not significant. Among sighted participants the man asked in 68.0 % of cases compared with 76.7 % of visually impaired participants.

Question Eleven ("Did your feelings towards your partner change after your first date? If so, how?").

Not all the participants responded to this question and, of those who did, not all answered it fully, neglecting to give reasons to accompany their answer. A qualitative

analysis of the remaining responses suggested a number of themes that could be found throughout the answers available for analysis. Firstly, the participants' responses could be divided into two groups: those who claimed their feelings had changed for their partners after the first date and those who admitted to no change of feeling towards their partners at this point. These two groups could then be subdivided into two further groups each.

Of those who claimed that their feelings changed after the first date, the two further subgroups were those who claimed that the first date had stimulated their interest so that they wanted to get to know more about their partner and those who claimed that their feelings towards the partner intensified, became stronger or deeper. The first of these is more motivational or cognitive, expressing the wish to get to know the partner better or to spend more time with her or him. The second subgroup is a more emotional response: presumably the respondents had enough information about her or his partner and were becoming more serious about the relationship.

An example of the emotional response given by some of the participants is afforded by sighted participant 42, who simply stated that her feelings "became stronger" and visually impaired participant 6 who claimed that she "...felt even more loving towards him and knew that I wanted to date him more". On the other hand the answers which expressed an increased interest in the partner (a smaller number of responses) can be represented by sighted participant 9 ("The interest was stimulated even more") and sighted participant 17 ("I knew I wanted to get to know him better"). Interestingly, the latter subgroup all came from the sighted cohort of participants, perhaps suggesting that more of the VI respondents had used the first date as an opportunity to

get to know their partner (rather than concentrating on appearance) and had then been able to make a decision as to whether or not to consider the other person as a long-term partner.

Many of the answers given by participants whose feelings had apparently changed, implied either implicitly or explicitly that the date had enabled them to get to know the partner more or that they had found out more during the date about the partner. For example, sighted participant fourteen claimed that "Yes. I found out more about her on that first date than I had in three months and a mild attraction turned into a major one." and from visually impaired participant 48: "I guess they did since I didn't really know him before we went out. I realized he wasn't just a ski bum and was really a very intelligent person and fun to be around".

This also held true for those whose feelings had changed in a negative fashion. For example, VI participant 49, whose relationship only lasted eighteen months, stated that she found her partner to be "snobbish" and "elitist" and listed a series of other faults that she had only discovered on his first visit to her home. Although it did take some time before the relationship finished, it had been a long-distance association and it was when she visited his house for the first time that things went wrong. Presumably the long-distance between VI participant 49 and her partner meant that she could find excuses for his behaviour and thus dismiss her doubts as to his suitability as a long-term partner.

The category of answers in which the respondents claimed that their feelings did not change after the first date were mainly made up of answers which merely stated that

there had been no change in feelings and did not give any reasons or any further detail. There were some more explicit responses however and, as stated above, these answers could also be split into two subgroups. First were those who claimed that they were being cautious and second were those who said that they had known the partner for some time and already knew a lot about her or him. An example of the cautious subgroup is exemplified in visually impaired participant 8 who stated that: "After that initial time when I was extremely vulnerable, I stopped to wonder what I had got myself into and initially felt scared. The previous break-up with someone had been particularly painful after a 15 month relationship and I wasn't sure how ready I was for a new person entering my life". Sighted participant 1 demonstrated similar feelings when she wrote: "Not really. I was still cautious, wondering whether he was going to end up as unsuitable as all the other guys I had dated". Again, sighted participant 32 expressed a similar sentiment when she claimed that her feelings had not really changed, since she had "played it cool".

The second sub-category of respondents who had known their partner fairly well before the date, again was small in number but all the answers explained the fact that the participants had been friends with their partners and had thus known them before they had become romantically involved and there was little left to discover about each other. Presumably, this meant that any decision to form a long-term relationship had already been made on the basis of this previously gathered knowledge. Sighted participant 36 demonstrates a typical answer to be included in this subgroup. After asserting that her feelings had not changed, she qualifies the statement by explaining that she "already knew him well by that point". Visually impaired participant 28 also gave a similar answer: she also denied that her feelings had changed after the first

date but said that "My feelings had changed long before then because I knew him fairly well before our first date and found out there was more to him than met the eye".

Interestingly, all of the answers to this question that professed no change to feelings after the first date came from female participants. This may well be a result of women being more careful in choosing their long-term partners, seeking someone who was prepared to commit to a relationship and to invest in any resulting offspring. For men, the search is basically for someone who is fertile and likely to raise children successfully. A much less rigorous selection will determine the best partner for this task. Women have more to lose from a poor mating match than men have and so will be more careful in choosing a partner than men. A result of this could be that women have a higher threshold in the case of emotional effects; men have to impress women more than women have to impress men before the partner is affected emotionally and thus it will take longer than only one date to bring about a change in the feelings of a woman.

Question Twelve ("How long after you met your partner was it before you kissed? Who initiated the kiss? Did this effect the way you felt about your partner and in what way?").

The first part of this question asked how long it was before the respondent and her or his partner shared a kiss. Table 6.11 summarizes the data gathered from the answers to this part of question twelve. Because of missing responses, participant numbers were reduced to forty-five visually impaired and thirty-one sighted respondents. The data gathered from the first part of question twelve was subjected to a 2 x 2 analysis

of variance. Neither the main effects nor the interaction term were significant. Details of the analysis are presented in table 6.11 below.

Table 6.11: Means and standard errors for Question 12 by subgroup.

		Mean	Standard error
Male	VIP	72.500	323.532
	Sighted	25.667	341.033
Female	VIP	554.943	172.935
	Sighted	102.500	218.125

In order to determine whether there is a difference between sighted and visually impaired participants in who provided the motivation for this part of the development of the relationship, the second part of question twelve asked participants who initiated their first kiss. Table 6.12 summarizes the data from this part of the question. Again, not all the respondents gave the information necessary for analysis, so the numbers of participants was reduced to thirty-nine sighted and fifty-one visually impaired respondents. A chi-square test was performed on the data in Table 6.12 to examine differences between the sighted and visually impaired respondents in who initiated the first kiss. Because of low cell size in the 'mutual' visually impaired cell, a 2 by 2 analysis was performed using only the respondent or partner categories. Despite a stronger tendency among visually impaired participants to nominate their partner (80.4 %) compared to the sighted participants (64.0 %), no significant result was found (chi-square = 2.31, n.s.).

Table 6.12: Who Initiated the First Kiss.

	Partner Initiated Kiss	Respondent Initiated Kiss	Mutual Initiation of Kiss
Sighted participants (n = 29)	15	8	6
VI participants (n = 51)	38	10	3

The final part of question twelve was concerned with how the participants' feelings changed after the first kiss. There were three main types of answers. The first group believed that their feelings had not changed and a second group consisted of those who believed that there had been a positive change after the kiss. Visually impaired and sighted participants of both sexes were present in both these categories. The third category of answers was those who believed there had been a negative effect after the first kiss. This category, however, only included responses from females (of both sight conditions) and was therefore very small in number. It may be that women's greater selectivity means that they are more likely to find fault with a potential partner, at any stage in a relationship, with greater ease than men.

A number of the answers claiming that the respondent had had a positive change in feelings identified the first kiss being a point where the relationship became more intimate, or at least informed the respondent that their partner had feelings for them. It seems that these participants considered the first kiss to be a point of no return in the relationship. Others mentioned their partner's adeptness at kissing, implying that this was part of the attraction of their partner. In other words, these participants had "tested" their partner's personality and/or other attributes and now were examining a more intimate, physical aspect.

Question Thirteen ("At what point did you feel as if you were in an exclusive relationship with your partner?").

The data gathered from this question was subjected to a two-way (participants' sex versus participants' sight condition) analysis of variance, with the dependent variable of number of days until the respondent felt they were in an exclusive relationship. No

significant results were found for either the main effects or the interaction term. Participants' sight condition approached significance ($F(1,64) = 2.66$, $p < .11$). Visually impaired participants' mean time to feeling they were in an exclusive relationship was longer (396.8 days) than that of the sighted participants (71.7 days). The details of the analysis are shown in table 6.13.

Table 6.13: Means and standard errors for Question 13 by subgroup.

	Mean	Standard error
VIP	396.827	142.578
Sighted	71.669	139.538

Question fifteen ("If you lived together, who suggested that you should move in? How long had you been in your relationship before this happen? Did your feelings towards your partner change after you started living together and if so in what way? Did you learn anything about your partner when you moved in together that you did not know about her/him before?").

This question was designed to probe into any differences that there might be between the two sight conditions in how long it took for the relationship to progress to the point of cohabitation. As with other questions, not all respondents included an appropriate answer to all the parts of this question. Some of the participants' relationships had not evolved to the stage where they had lived together, while others answered part of the question but not all of it and some simply gave no answer. From the available responses, both qualitative and quantitative analyses were performed.

The first two parts of this question were concerned with how long the relationship had lasted before the participant and her or his partner started to cohabit and who

suggested in the first place that they should do so. The results of the quantitative analysis for these first two parts of question fifteen are shown below. An analysis of variance was performed on the data identical to the test carried out in the previous question. No significant difference was found here. The details of the analysis can be seen in Table 6.14.

Table 6.14: Means and standard errors for Question 15 (Number of days until living together) by subgroup.

		Mean	Standard error
Male	VIP	471.786	351.038
	Sighted	591.875	464.380
Female	VIP	599.643	351.038
	Sighted	664.969	232.190

Question fifteen also asked respondents which member of the partnership first suggested living together. The data gathered from the answers to this question are summarized in Table 6.15.

Table 6.15: Differences Between Sight Conditions in Who Suggested Living Together.

	VI Participants (n = 19)	Sighted Participants (n = 20)
Respondent	8	7
Partner	5	4
Mutual	3	6
Other	3	3

A chi-square test was performed on the data gathered by this question. To ensure adequate cell sizes, the categories had to be collapsed as follows: respondent and partner categories were combined, as were mutual and other categories. The chi-square was not significant (chi-square = 0.72). Among the sighted participants living

together was suggested by the respondent or their partner singly (as opposed to mutually) by 40 % and among the visually impaired participants by 54.2 %.

The third part of the question asked how the respondent's feelings changed (if at all) after starting to live with their partner. Answers given to this inquiry were subjected to qualitative analysis, as were answers given to the final part: how much (if anything) the participant learned about her or his partner after living together.

Answers to the enquiry into how participants' feelings changed after beginning to live together indicated four themes. The largest group contained answers claiming that there was only a positive change in the participant's feelings (for example they became stronger or more intense). Sighted participant 34 stated that "...Feelings and togetherness naturally get deeper" and visually impaired participant 24 claimed that her feelings towards her partner "...only became more intense".

The second category of answers consisted of statements that claimed the participants had experienced both a negative and positive change in feelings. These answers usually spoke of the fact that living together was a process of finding out about their partners and that both good and bad elements of the other person had come to light during the period of cohabitation. For example, sighted participant 8 stated that living together "...totally changed the whole basis of our relationship - we saw each other at our worst a lot more and it was a lot more like being part of a family, warts and all. But it also deepened our relationship and it became the two us against the world as a team, which is great- I feel much more balanced and grounded than I did before".

The third category of answers was small in number and included all the responses that showed only a negative change in the participant's feelings. These answers did not explicitly say that they had a change in feeling, but usually described events that led up to a realization that the relationship was going to have to finish. For example, sighted participant 17 claimed that "When we moved exclusively together things changed after only a couple of weeks. He felt he had "got" me then and wanted to exclude me from my family".

The fourth category of answers was also quite small. These were those who admitted to no change of feelings at all. The stability of feelings in these answers may have been due to the fact that the respondents already knew their partners fairly well before moving in together, or simply because they did not realize at the time there was any change or have since forgotten that there was any change. An example of this category can be found in sighted participant 43 who not only claimed that her feelings did not change, but also that she learnt nothing new about her partner after starting to live together. This example may give some support to the idea that the participant's feelings did not change because the two members of the partnership knew one another well enough before living together to prevent any great revelations being made once they were cohabiting.

Although there was no difference between the two sight conditions in whether or not a change in feeling was mentioned, there did seem to be a sex difference. Females were more likely to mention a change in feeling in their answer than males were. One reason for this may be that females are more cautious in their selection of a mate and are thus more aware of their feelings towards a potential long-term partner. Thus,

after a large step such as moving into shared accommodation, a woman may be more sensitive to a man's actions affecting her feelings (either positively or negatively). Alternatively it may be that the male participants were less willing to talk about their feelings to a complete stranger and thus wrote less in response to this question.

Qualitative analysis of the final part of question fifteen led to the identification of four categories of answers to the question of what the participant learned about her or his partner after they began to live together. Respondents learning practical details about their partners constituted the first group of responses. It was found almost entirely among the women in both samples; only one male (sighted participant 24) gave a response that could be included in the category and his answer also contained elements that could be coded in the second category. This "practical" group of answers was chiefly composed of responses claiming that they had learned about how helpful or lazy she or he was in the matter of housework. Examples of this group can be seen in female sighted participant 17 who "realised how lethargic" her partner was and VI participant 1 where the respondent stated that she learned more about her partner's "general living habits". These comments were divisible into two groups: negative comments (such as sighted participant 17 above) and neutral comments (such as visually impaired participant 1 above). There were no positive remarks to the effect that the partner did more than his fair share of the house work or helped the respondent more than she expected. Despite the negative nature - or at least neutrality of these answers - they did not seem to forecast the end of a relationship. One reason why no positive comments were present within the practical category may be because it was only the surprising, negative features of the partner that stuck in the participants mind and any positive elements had become part of the partner's personality. As

such, the respondents have forgotten a time when they did not know that their partner was like that. Although there may have been positive changes, they were not as surprising as the negative changes because the respondent did not expect her partner to behave as he did. Alternatively, it may be that the respondents' partners had tried to portray themselves as being more desirable than they actually were until a point where they felt that they had "caught" the respondents. Because it is unlikely that anyone would initially pretend to be less desirable than she or he was, it is perhaps not surprising that negative traits emerge only with time and cohabitation.

The second category of answers included references to discoveries about the partner's personal life. Such comments encompassed, amongst other things, details of participants' discovery of their partner's personality and past history. The category contained answers from all four populations (sighted female and male and VI female and male), although it was slightly more prevalent amongst both sets of female participants. Sighted participant 6 was categorized in this group because he claimed that after he and his partner lived together, he "understood her more". Likewise, visually impaired participant 42 claimed that she learned that her partner had "a sleep problem - restless, snoring, etc" and that he was "a night person". At the end of her answer, she admitted "most important, I learned that he is a very caring person and that he really loves me with all my faults and that he supported me in whatever I did".

The third category was one that included comments of a general nature. In these answers, no specific details were given by respondents. Phrases such as "I learnt a lot" (sighted participant 41) and "we learned things about each other" (visually impaired participant 37) were common.

Finally, a category of answers in which the respondents claimed that they learned nothing further about their partner while cohabiting was distinguished. Members of all the sample populations were present in this category. Some respondents gave a reason for the lack of new information: they had been visiting their partner (or their partner had been visiting them) and staying with one another before actually moving in together and so had been able to glean much information during this time of pseudo-cohabitation. Alternatively, they had known each other for some time (without actually staying for short periods with each other) before moving into joint accommodation and felt that there was little else to discover about their partner.

Question Sixteen ("If you got engaged, who proposed to whom? If you proposed, what was it about your partner that made up your mind to do so? If your partner proposed to you, what was it about your partner that made up your mind to give the answer you did? Did your feelings about your partner change when she/he proposed to you or you proposed to her/him? If so in what way?").

Among the sighted participants, the partner proposed in 57.1 % of cases, compared to the visually impaired participants, where the figure was 69.1 %. Table 6.16 shows a summary of the results of the quantitative study of this part of the question. Since this investigation was only interested in a comparison of visually impaired and sighted people, no analysis was performed to investigate differences and similarities between the sexes – thus no data is presented in Tables 6.16 and 6.17 on females and males. A chi-square test was performed on the data presented in Table 6.16 (omitting mutual decision to ensure adequate expected values). No significant differences were found (chi-square = 0.881).

Table 6.16: Differences Between Sight Conditions in Who Proposed.

	Sighted participants (n = 24)	VI participants (n = 38)
Respondent proposed	9	11
Partner proposed	12	25
Mutual decision	3	2

The question then asked about why the respondent had proposed (if they had) or why they had given the response they did (if their partner had proposed). Qualitative analytical methods were utilized in order to investigate the answers given. The analysis showed up three themes that were common in all the responses given to this part of the question. Firstly, many participants (both female and male and from both sight conditions) claimed that it had seemed to be a natural progression in the relationship. Sighted participant 1 claimed that "I figured that if we loved each other and lived together in harmony, that it was time to move ahead and get married", while visually impaired participant 35 said that it was "natural evolution" that they should get married. Visually impaired participant 25 sums up this idea when he stated that he "figured it was either get married or end the relationship". This category also included answers that claimed that the move towards marriage either seemed or felt like "the right thing to do" (e.g. sighted participant 13). Many responses suggested that the participant considered that she or he was “meant for” her or his partner (e.g. visually impaired participant 51) or that the respondent knew that her or his partner was "the one" (e.g. visually impaired participant 31).

The second theme that was established included responses, which implied that the participant believed that her or his partner was the person with whom the respondent wanted to spend the rest of her or his life. Also included in this group were responses

stating the reason for the engagement as being security, since these responses claimed that they wanted to be with their partner and engagement was how they intended to do this (sighted participant 28), by symbolizing their mutual commitment or that the respondent and the partner wanted to be (or stay) together. For example, visually impaired participant 12 claimed "I proposed to her before she moved into my house. We wanted to stay together, so a symbol of commitment seemed to be in order".

Finally, the third group included all those responses in which the respondent claimed either that they loved their partner, or that they loved one another. Examples of this category can be found in visually impaired participant 13 (who stated that after her partner had proposed, "I said yes because I loved him") and sighted participant 21 who proposed to his partner, saying that he "felt I loved her enough to do so". A number of visually impaired participants (but no sighted ones) mentioned particular personality traits (such as caring or loving) as being the reason for either proposing or accepting a proposal. It is interesting that only the VI participants mentioned personality traits.

The final part of question sixteen asked whether the participant's feelings changed after a proposal had been made. Of all the responses that answered this part of the question, only one was negative (visually impaired participant 36) who claimed that after she had accepted her partner's proposal of marriage, she broke off the engagement because she discovered elements of the partner's personality that she did not want to live with. All the other responses fell into one of two categories. Firstly those who did not believe that their feelings had changed at all and secondly those who claimed that their feelings had changed positively - that is, had become deeper or

stronger. An example of the former category can be seen in visually impaired participant 5 ("I don't think my feelings changed significantly because it was really just formalising what we already had") and sighted participant 3 ("Feelings did not change after that"). The latter (and larger) category is exemplified in sighted participant 13 ("Feelings continued to grow stronger") and visually impaired participant 39 ("It felt like I'd just about nailed the last board in place on our emotional house of love"). This category also included answers that suggested a feeling of greater security. For example, sighted participant 31 claimed that she "felt secure and content".

Question Seventeen ("If you married your partner, whose idea was it to do so? What was it about your partner that made you want to marry them? Did your feelings about your partner change after you married her/him? If so, in what way?").

This question was designed to test whether the step of marriage would make any difference to the feelings of the respondents towards their partners. Firstly, participants were asked whose idea it was to get married. This is similar to the first part of the previous question dealing with engagement. Engagement and marriage are often coupled together, the former being seen as the first step to the latter. These two questions were included to see if there was any difference between the sighted and visually impaired participants in which member of the partnership was responsible for the progression of the relationship. It is possible that once the members of the partnership become engaged, the relationship does not progress any further without pressure from one of the partners. Thus although the respondent may have proposed marriage to her or his partner (initiating engagement), the relationship may have then stagnated until the partner prompted the actual act of getting married (or vice versa).

Thus both questions were asked. Table 6.17 summarizes the results of the quantitative analysis of this question. As with the data presented in Table 6.16 no analysis was performed on any differences between the sexes, since the prime function of this investigation was in comparing the answers given by sighted and visually impaired people. Among sighted participants, 61.5 % of marriages were initiated by the respondent or partner compared to 58.3 % among the visually impaired group. In order to perform a chi-square test, the responses were collapsed into two categories: mutual decision versus self or partner. No significant results were found (chi-square = 0.04). Although the second part of question seventeen was concerned with reasons for marrying, respondents added nothing to the information that had already been given to question sixteen.

Table 6.17: Differences Between Sight Condition Populations in Who Initiated Marriage.

	Sighted participants (n = 13)	VI participants (n = 24)
Mutual decision	5	10
Partner initiated marriage	5	7
Respondent initiated marriage	3	7

The final part of question seventeen enquired whether the respondent's feelings for her or his partner had changed after marriage. The responses to this question were subjected to qualitative analysis. This examination yielded three themes that were present in all four samples. Firstly, the largest group, were those who answered that their feelings had changed for the better since marrying their partner. These answers stated that respondent's feelings had intensified or become stronger in addition to citing specific emotions (such as becoming closer or feeling more secure and permanent). For example, sighted participant 1 claimed that "If anything, I'm more in

love with my husband then the day we married" and visually impaired participant 39 said that after marrying his partner, his "feelings have only intensified". Amongst the responses within this positive change group were a number of answers (from both visually impaired and sighted participants) that spoke of having to work at a relationship. These answers all said that throughout the duration of the respondent's partnership there had been both good and bad elements but working together with her or his partner had proved worth the effort in that the relationship had then lasted.

The second category of answers included all the responses that claimed that there had been no change at all in feelings after marriage. These answers stated that the respondent's feelings had simply remained at the same level of happiness since the marriage. Examples of this category can be seen in visually impaired participant 11 who, after claiming that she and her partner had needed some time to get used to living together, stated that their feelings for each other "did not change as we had already known each other for three years and thus were quite aware of each other's shortcomings" and sighted participant 26 who also claimed that "no, the feelings did not really change".

The third category found in all four samples included responses claiming a negative change to their feelings. A majority of the answers included in this category describe how, after marrying their partner, the respondent discovered elements of the partner's character or habits that were disliked by the respondent. The answers all go on to describe how the marriage faltered and broke up as a result. The remaining answers in this category describe how the fact of being married was disliked by the respondent. For example, sighted participant 4 claimed that "It was much more fun

not being married. I don't like to feel any kind of control over me and I felt like I had to do things now because it was expected of me and not because I wanted to". The most common response from the visually impaired respondents in this category was that the respondent felt trapped in the relationship. None of the sighted participants used this word, but generally spoke of how they had grown away from their partner. An example of the type of answer given by a visually impaired respondent is seen in visually impaired participant 25 who stated that he "felt stifled and in a rut" and participant 16 who claimed that "his self-confidence turned into controlling behaviour and I became feeling trapped".

Question Eighteen ("I am particularly interested in any differences there may be between sighted and visually impaired people's experiences of romantic partnerships. Please discuss fully as possible any differences that you feel your visual impairment made in your relationship.").

This question was presented only to the visually impaired participants and was designed to determine whether they believed their visual impairment made any difference in their romantic partnership. The answers were subjected to qualitative analysis, which distinguished a number of themes that were common to both female and male responses as well as some differences between the sexes.

Most of the respondents claimed that they believed that their visual impairment had not made a difference in their relationship. Two answers claimed that impairment had had a negative effect and none believed that there had been a positive impact. Both female and male respondents mentioned the dilemma that faces all disabled people: whether to form a long-term relationship with someone who has the same disability

(and consequently can understand the associated problems but will also share them) or to marry a non-disabled person (who will be able to assist with the problems but might not understand their impact on the disabled person). To truly understand the frustrations and problems caused by a visual impairment, a person has to experience those problems personally. Unfortunately, this then doubles the problems that the dyad experiences.

Allied to this is a common theme about which most participants expressed a view. A long-term relationship with a sighted person has both advantages and disadvantages over a partnership with another visually impaired person. The most frequently mentioned advantage is transport: A sighted partner is most likely to be able to drive and this means that a disabled person is not reliant on public transport or taxis. If the couple live in an area in which there is little public transport and where taxis are expensive, the VI person becomes reliant on her or his partner for travelling. On the other hand, long-distance travel alone may be preferable to being accompanied by another visually impaired person. Accounting for two guide dogs and luggage makes the travelling even more problematic.

Although both females and males remarked on this issue, there does seem to be a difference in how the topic was approached by the two sexes. The female respondents placed a heavy importance on the loss of their independence through reliance on a sighted partner. They also mentioned that their partners did not fully understand why their impairment caused them to need help and they felt guilty about their partner doing more in the relationship than men in a sighted partnership. The male respondents, on the other hand, seemed to be more positive about the issue.

They tended to emphasize the fact that having a sighted partner had advantages; they were able to drive, read printed material and find lost articles with greater ease. For example, visually impaired participant 23 stated that "I needed her to help me with some things I couldn't do as a blind person, and she helped with them". A good example of a female response to this question can be seen in visually impaired participant 7 who said that her partner "does considerably more for me than a normal partner" and that at "first I felt guilty about this, but now have to just accept it to stop myself going crazy". Male participants are also more likely to speak of negotiating differences and problems with their partner. Participant 58 said, "We just have to work things in a different way. For example when we were just dating I could not pick her up to go on dates, but she had a car so we worked it out".

Both female and male participants talked about the difference between how a sighted and VI person initiates a relationship. For example, from the female visually impaired population, participant 8 claimed, "Generally speaking, with a sighted person, often the first thing to make an impression is physical attraction and body language. If you don't have that visual stimulus, it can be a person's voice, warmth, first impressions of their personality etc. I was attracted to my partner by his warmth and voice. It is gentle, kind and has so much warmth and friendliness within it". Male visually impaired participant 32 wrote: "The first and most obvious, is that the attraction is less based on purely aesthetic and, as such, transitory detail and more based on those enduring characteristics of the person, the very characteristics that will remain after time has decayed the aesthetic appeal".

Summary of Qualitative Analyses.

In all the qualitative analyses of the questions (except for question eight), there was very little difference found between the two sight condition groups. Question eight, by contrast, did seem to demonstrate some differences between sighted and visually impaired people. It was concerned with the initial phase of the relationship (what feature had initially attracted the participant to their partner). Throughout the rest of the relationship, however, visually impaired and sighted people gave similar answers (although there were sex differences). This is interpreted as support for the theory of species-typical mate preferences and Miller's (1997) sequential model of mate selection. If visually impaired and sighted people progress through their relationships in a similar fashion, but seem to differ in the initial attraction to their partners, then one explanation is that humans as a species share preferences in who to select as a partner, but how the selection process actually works differs from person to person depending upon the circumstances. Gangestad and Simpson (2000) reported similar results from a study examining the preferences of women for either long- or short-term partners. These authors rated their participants on a socio-sexual orientation inventory as being either restricted (more likely to look for long-term relationships) or unrestricted (more likely to accept short-term relationships). They found that women rated as being unrestricted found symmetrical men more attractive than restricted women did, especially as a short-term partner. Gangestad and Simpson claimed that this demonstrated how preferences for partners could change depending upon the circumstances (e.g. whether the person selecting a partner was restricted or unrestricted in her socio-sexual orientation). Thus, it is possible for visually impaired people to have the same mate preferences as sighted people (Chapter Three), but will

look for them in a different order (Chapter Four) while still progressing through a relationship in a similar fashion to sighted people.

Discussion.

*Before discussing the results of this study, it should be pointed out that a large number of statistical tests were performed on the data gathered and it is possible that I have capitalized on chance - the few significant results that were found may have been due to chance. That is to say, if too many statistical tests are carried out on the same data set then it is possible that one or more of the results could have occurred simply by chance itself.

This investigation was divided into two parts. Firstly, the issue of whether or not sighted and visually impaired people differed in the rate at which their relationships progressed was examined. Secondly the matter of how visually impaired people meet potential partners was investigated. A comparison between sighted and visually impaired people suggested that there is a common progression of stages that all the relationships appear to go through. (Although not all the partnerships actually completed all the stages, all of them followed the same route though not for the same distance). This is been taken as support for hypothesis three ("All the respondents will follow a common series of steps in their relationships").

The results from the former part of the study revealed that the rate in which sighted and visually impaired people's relationships develop seems to differ very little. There is no difference in the length of time taken before any of the common stages of

relationship development are reached. This is counter to hypothesis four which expressed the belief that visually impaired people will take longer to make the early decisions, as to commit to a long-term relationship, since immediate visual cues are not available and they must rely on lengthier methods of assessment and discrimination (such as talking to potential partners). One reason for this might be that although non-visually impaired people use visual cues to make immediate decisions on whom to pursue as a long-term partner, they too use lengthier methods of assessing potential partners when making long-term relationship decisions. This study cannot, however, comment on the strategies used in short-term relationships since the questionnaire was specifically concerned with long-term partnerships.

The latter part of this investigation also provided a number of results. For example, from the answers to Question Eight, it can be seen that there are a number of elements other than physical appearance that influence initial attraction. These include personality, sense of humour and similar interests. Although a small number of visually impaired participants (mainly partially sighted) did claim that physical appearance was a factor in initial attraction, the element of physical appearance that was most commonly mentioned in the VI sample was height (which can be assessed even with an impairment). The majority of visually impaired participants, however, cited other factors, as did a number of sighted participants. This result suggests support for the findings of the previous two studies, which found that visually impaired people claimed that the physical appearance of their partners was important, but look for other information first.

The fact that both the sighted and visually impaired participants mentioned personality as a factor in initial attraction may help to explain why the two groups spent the same amount of time between each stage of the relationship. Both sighted and visually impaired people alike assess personality in potential long-term partners. The difference is that sighted people also use visual cues, which swamp the non-visual information and makes them more likely to mention physical attractiveness when questioned about a potential partner. In other words, a partner's physical appearance is immediately available to the sighted and so this is what they generally think of when being asked to consider what traits they would like in a potential partner.

Although it was hypothesised that VIP are more likely to meet potential partners in circumstances that allow them more time to get to know the other person, or that gave a longer period of time in which to accrue information about that person, no difference was found in where participants met their partners. This may be due to the fact that human mating strategies are, according to evolutionary-based theory, species-typical. Thus, if VIP assess their potential partner's personality traits, so too will sighted people. This will mean that both sighted and visually impaired people will take the time to talk to potential partners with sighted people only using visual cues (which VIP do not) in the very initial stages of attraction. Visually impaired people are only postponing the assessment of visual cues until a later time and are not replacing such an assessment with a judgement of personality. This means that both sighted and visually impaired people are just as likely to meet a future partner in the same places as each other.

A significant difference was found, however, between where visually impaired and sighted people went on their first date. Specifically, sighted people are more likely to take (or be taken) to some form of entertainment (such as the cinema, theatre or concert) on a date than visually impaired people, who are more likely to go for a drink or a meal. This may be due to the fact that the forms of entertainment most commonly mentioned were visual ones. It may be that either the VI participant did not want to see a film or play and so went for a meal instead. Or it may be that the partner (if she or he was sighted) assumed that the VI participant would not want to go to a visual form of entertainment (especially since this was a first date and there had not been time for a sighted partner to discover that her or his stereotypes of visual impairment were incorrect). Alternatively, it may be that a preference on the part of the visually impaired person was due to them wanting to be able to talk to their partner rather than being distracted by watching a film or play.

No differences were found in whether the participants had prior knowledge of their partner before becoming romantically involved. There seemed to be no difference in who provided the momentum for the development of the relationship: neither at the point of asking for a date, nor at the time of the first kiss, nor when progressing to the point of being willing to live together, proposing, or even at the point of marriage. From this it is concluded that visually impaired and sighted people play an equally passive or active role in their relationships. This conclusion must be made only tentatively, however, since it was not made clear whether the partners in question were visually impaired themselves.

Another surprising difference found in this investigation is that visually impaired people are not more likely to be introduced to their partner by a third person as proposed in hypothesis two. In fact the opposite was found: Sighted people are more likely to have been introduced to their partner, while VIP are more likely to either introduce themselves or have their partner introduce her or himself. The idea behind this hypothesis was that it was thought that it might have been harder for a visually impaired person to introduce her or himself to other people (including potential partners) since not being able to see where other people are, they could not know who was around them. An answer to this issue might be held in some of the answers to question eight. Here, participants were asked what had initially drawn them to their partner. Several of the VI participants claimed that it had been their partner's voice. Thus, in the same way that a sighted person sees someone they are attracted to through visual signals, a visually impaired person might hear an attractive voice and thus be able to locate them and introduce her or himself to a potential partner.

An alternative explanation might be that in order to analyze the data, the categories of "introduced self" and "partner introduced her or himself" had to be merged. It is possible that this category is made up chiefly of instances where the partner introduced themselves rather than the respondent taking a proactive role. Thus it may be that the partners of the visually impaired participants were more likely to introduce themselves rather than a VI participant introducing her or himself. One way of testing would be to replicate this study, but including a larger number of people (both sighted and visually impaired) in the sample.

Another potential problem with the current study was, as stated above, that participants in the present study were not asked if the partner on whom they were reporting was also visually impaired. It may be that there are differences between partnerships composed of two visually impaired people and those where only one member is impaired.

Alternatively the design of the study may have been at fault. For example, no distinction was made between totally blind participants and those who were partially sighted. Omitting respondents with some sight would have left even fewer answers to analyze and so all responses were included in the analysis of the data. It may be that the partially sighted respondents had enough sight to be able to see that there was a person there and thus was able to introduce her or himself to that person. Any future study should include a distinction between partially sighted and totally blind participants. An investigation into whether or not there are differences between these two groups may help to explain some of the present results. That is to say, if totally blind and partially sighted people differ from one another, then this may explain the lack of significant differences found in this study.

The results of this study, indicating no differences in the speed at which a relationship develops between the two sight conditions has been explained by claiming that the sighted participants must assess other factors in potential partners as well. Presumably physical appearance plays a part in the initial stages of attraction, but factors such as personality are also considered before making a mating decision. The question now is: what are these other factors? A start has been made during this study, asking participants what it was that initially attracted them to their partners, but a

more detailed inspection of what factors play a role in choosing a long-term partner needs to be completed. The following chapter is an attempt to examine this by looking at how married couples rate a number of traits in their spouse at different points during their partnership and the relationship of such ratings to current marital satisfaction.

CHAPTER SEVEN.

THE SECRET OF A SATISFIED MARRIAGE (STUDY 4).

In the last chapter it was suggested that, in the case of a long-term relationship, the physical appearance of a potential partner was only one factor influencing mating decisions. People take time to get to know a prospective partner, finding out about (amongst other things) their personality and character. These findings concur with those of Buss et al. (1990) who reported that non-physical factors were considered to be most important in a long-term partner by both females and males. The overall ordering of the ratings for both sexes in the Buss et al. (1990) study, show that "mutual attraction-love" is the mate characteristic ranked as being the most valued. Buss claimed that this is not so much a characteristic, but in fact is a "state of the relationship" demonstrating mutual feelings and "reciprocity".

The next three most valuable mate characteristics were "dependable character", "emotional stability and maturity" and "pleasing disposition". These can all generally be considered as personality factors. Likewise, the three mate characteristics rated as being most desirable in a potential partner by both women and men in Buss's (1989) study were also personality factors ("kind and understanding", "intelligent" and "exciting personality"). These three characteristics are said to be a reflection of the desire for a mate who is stimulating but not aggressive or selfish. Snyder, Berscheid and Glick (1984, p. 1428) similarly noted: "...both the physical attractiveness of the other and the other's personal characteristics - such as attitudes, dispositions and other inner attributes - have been demonstrated to be potent determinants of attraction in closed-field settings and they also have been shown to influence relationship pursuit

in an open-field". It can be seen therefore, that there are factors other than physical features, which play a part in the selection of a long-term partner. This prompts a number of questions. One of these concerns function. If selecting a partner on the basis of physical features is explained by stating that these selection criteria represent health, fertility or age, what do different personality traits signal?

It has been argued (e.g. Buss and Schmitt, 1993) that the relevance of personality assessment lies in its ability to signal either parenting ability or alliance quality. In this chapter, the aim is to discover more about the role of personality in mating decisions. The proposal to be examined is that personality factors are used, at least in part, to "test" a prospective partner in terms of their likely compatibility in a long-term relationship. The study will investigate how personality selection criteria for a prospective partner can be used in predicting how satisfied an individual will be with a long-term relationship (marriage). Instead of asking participants to rate traits, to rank them in order of informational priority in a fictional partner (e.g. Chapters Three and Four) or asking questions about real partnerships in the absence of information about how successful those relationships were (e.g. Chapter Six), this study aims to find correlates of differential satisfaction in marriages. This will hopefully provide insights into the criteria that people who have experienced successful marriages used in selecting a partner.

A number of previous studies have investigated factors that either contribute to a relationship's success or its failure (e.g., Amato and Rogers, 1997; Betzig, 1989; Weisfeld, Russell, Weisfeld and Wells, 1992). During the 1990s in particular there was a wealth of research on marital satisfaction from a range of distinct but

overlapping areas (Bradbury, Fincham and Beach 2000). The correlates of marital satisfaction investigated in these studies focused "...on psychological factors, sociodemographic variables and trends, parenting, physical health and psychopathology, or some combination of these, all in relation to some aspect of marital quality" (Bradbury, Fincham and Beach, 2000, p.964). Some of the findings from these studies are summarized below.

Weisfeld, Russell, Weisfeld and Wells (1992) claimed that homogamy, or positive assortative mating has been demonstrated in humans on traits such as socioeconomic status, ethnic background, social attitudes, attractiveness, personality factors, level of education and IQ. In these cases, homogamous couples are more likely to be more satisfied than dissimilar couples. These authors also noted that other studies have shown a relationship between marital satisfaction and the husband earning more than the wife, being better educated, or having wealthier parents.

Bradbury and Fincham (1990) reviewed research involving the role of attributions in marital satisfaction and dissatisfaction. There seems to be strong evidence from several studies for an association between marital dissatisfaction and the tendency to "...view causes of negative relationship events as globally influential in the marriage rather than limited to specific situations" (p.7) and between couple dissatisfaction and ascribing negative events to the partner rather than to environmental or circumstantial causes.

Other authors have documented the association between interaction style (or at least the perceived interaction style) and marital satisfaction. For example, Planava,

Rajmicova and Blazkova (2003) reported, amongst other things, a correlation between both individuals displaying a mutual emotional closeness and their satisfaction with that relationship. Shapiro, Gottman and Carrere (2000) have shown that a woman's satisfaction with the relationship depends upon the husband's expressions of affection towards her and both partners' awareness of each other and their relationship. These investigators also found that a decline in the woman's relationship satisfaction was predicted by the husband's negativity towards her, his disappointment with the marriage or the wife perceiving their lives as being chaotic.

Marital satisfaction is inversely correlated with negative interaction between spouses; the more partners argue with each other, the less satisfied they are with their relationship and the more they think and talk about divorce (e.g. Stanley, Markman and Whitton, 2002). The decline in satisfaction is not only related to the frequency of disputes but is even more related to how the couple argue. This can be seen in Gottman and Levenson's (2000) finding that one important factor in relationship dissatisfaction was too much negative and positive affect present in the couple's interactions; a neutral affective style seemed to be associated with a longer marriage length. Orbuch, Veroff, Hassan and Horrocks (2002), however, found that the interactional style of a couple may be important in the contexts of a dissatisfied relationship, but that they also depend upon race and gender.

One particular interaction style has been investigated by several authors: that of demand/withdraw. For example, Stanley, Markman and Whitton (2002) claimed that the withdrawal of either or both partners during conflict was related to increased negativity. On the other hand, although Caughlin (2002) also reported a correlation

between demand/withdraw and marital dissatisfaction, it seemed to be associated with an increase in wives' satisfaction.

Another factor, which seems to influence satisfaction in relationships is that of personality. Tucker, Kressin, Spiro and Ruscio (1998), for example, have shown that certain personality types (e.g. those who were rated as being more angry and vain or egotistical, lacking in sympathy or tenderness and lacking in conscientiousness and perseverance) were at a higher risk of an earlier, rather than later, divorce.

Along with the cognitive elements described above, there have also been a number of physical factors reported to have an association with satisfaction levels. For example, a greater synchrony in physiological systems has been reported in more satisfied couples than with dissatisfied ones (Thomsen and Gilbert, 1998). Other non-cognitive factors include the length of time the couple knew each other before they became romantically involved. Here, the longer the partners knew each other before a commitment was made, the greater the chances of the relationship being stable: "women with longer courtships and higher rates of interaction with their fiancées were half as likely to separate as those who had shorter courtships and less interaction" (Kitson, Babri and Roach, 1985, p.272).

In addition to the cognitive and personality variables associated with relational dissatisfaction, there are situational correlates. One example of these has been reported by Weiss and Willis (1997). These investigators were able to demonstrate that an unexpected increase in the husband's earnings reduces the probability of divorce and that an unexpected increase in the wife's earning capacity has the opposite

effect. Having children is another correlate of marital quality (Barnard 2000; Weiss and Willis, 1997). Childless couples are twice as likely to divorce as those with children and ten times more likely to divorce as those with four or more children. Barnard (2000) also expresses a view that marriages change over time, becoming more reliant on companionship and less on physical attraction. Thus relationships that are unable to accommodate this change are more likely to fall apart.

In summary, research into marital satisfaction has yielded a variety of potential causes for marital success or failure. The findings reported are of traits that are associated with satisfied or dissatisfied couples, which does not imply a causal link. For example, it is equally likely that an unsatisfied marriage causes its members to ascribe negative events to each other, as it is to claim that ascribing negative events to a partner causes a dissatisfied marriage. A third factor may influence both marital satisfaction and the correlate of satisfaction (e.g. something may be the cause of both ascribing negative feelings to a partner and dissatisfaction with the relationship), although this problem may be less of an issue in the longitudinal studies (such as Amato and Rogers, 1997).

The studies reviewed here (as well as a majority of other investigations into marital satisfaction) have not been based upon evolutionary theory. In contrast, evolutionary theory has been used to inform the current study. Thus, the potential correlates of marital satisfaction in the current study are drawn from the theory discussed in Chapter Five. That is, that when choosing a partner for a long-term relationship, a person should not only look for a spouse with "good genes" or who displays traits desirable to the opposite sex, but also for someone who will be a good ally and who

will be willing and able to help in raising children resulting from the partnership. Betzig (1989, p. 655) notes that "Obviously, reproduction is accomplished without marriage in the vast majority of organisms, but where, as in the human species, young benefit enough by being cared for by both parents, parents appear to have to cooperate in order to provide such care." Betzig argues that a prospective parent of a species that requires bi-parental care (such as in humans) should choose a mate depending on her or his willingness and ability to help raise offspring. "Ability" is defined as being whatever social and economic resources contribute to reproduction and "willingness" as including some guarantee that these resources will not be used to support unrelated young (e.g. through adultery or polygamy).

Thus, in the current study, twelve criteria on which a partner might be selected were grouped into three categories. The three groups of traits were designed to reflect the three different elements hypothesized to be important in a marriage. Four qualities thought to be indications of a good ally were included; "Takes my side when others criticize me", "Trustworthy and dependable", "Contributes as much as I do to making the relationship work" and "Kind and understanding". These traits were designed to capture the fact that a desirable long-term partner might be one who supports the other member emotionally. The second category was designed to include characteristics that would indicate an ability and willingness to invest in the partner and children. Within this group were "Ambitious", "Financially secure", "Committed to home and family" and "Faithful". The third and final category was designed to represent the fact that "genetic quality" might be a desirable quality in a partner. This group included "attractive body", "facially attractive", "desirable to the opposite sex" and "sexually attractive".

Participants were asked to rate these characteristics in terms of importance with reference to a real-life partner at three different times in a relationship; when they first met their partner, when they got married and currently (or at the point of divorce if applicable). These ratings were used to predict how satisfied the participants currently are with their relationship. In order to test how much the respondents believed that their partner demonstrated the qualities listed, the participants were also asked to rate how characteristic they thought each trait was of her or his partner. Again, participants were asked to rate how characteristic the traits were at the same three points during the relationship.

Hypotheses.

1. If there is an advantage to someone selecting a mate in terms of her or his ability to raise children and/or supportive nature, then it should be possible to predict current marital satisfaction using the importance given to factors associated with parental skills and being a good ally. That is, those respondents who rated the traits included in the alliance and supportiveness groups as being important in a partner will be more satisfied in their marriages than those who rated the traits included in the physical attractiveness group as being more important in a partner.

2. Sex differences in the importance scores compatible with previous research (e.g. Buss 1989) should be evident. That is, it is hypothesized that sex differences should show that women hold resourcefulness to be more important in a partner than males do and males hold physical attractiveness to be more important in a partner than females do.

3. Marriages change over time. The importance scores given by participants to the different traits are expected to change through the course of the relationship. These changes may predict current marital satisfaction.

4. Assuming that the first hypothesis is correct and assuming that these qualities take a greater length of time to be assessed than physical appearance, then the more time taken to assess these factors in a prospective partner the better the chance of a satisfied relationship. Thus it is hypothesized that the longer the period of time spent before becoming romantically involved and the longer a couple has known each other before marrying, the greater their current marital satisfaction will be.

5. If selecting a long-term mate requires a person to spend time in getting to know their prospective partner, then they should find out more about their partner at the beginning of the relationship. This means that there would be less to find out about a partner later on. It is thus hypothesized that there should be a greater change in the participants' characteristic scores between first meeting and marriage than between marriage and the present.

6. If time taken to get to know a person before commitment enhances relationship satisfaction, then it is hypothesized that changes in the participants' characteristic scores should predict current marital satisfaction. Thus the change in characteristic scores between first meeting and marriage and marriage and the present should be associated with marital satisfaction.

Method.

Participants.

The questionnaires were distributed to a secondary school staff room in the north east of England and teachers took a copy voluntarily. The questionnaires were anonymous. Stamped addressed envelopes were provided for returning the completed forms. Eighty-two questionnaires were returned by post by fifty-three women (mean age = 45.00, s.e. = 10.35) and twenty-nine men (mean age = 49.28, s.e. = 9.73). All respondents had been married at some time in their lives.

Instrument and Procedure.

A questionnaire was devised (see Appendix Three) to obtain information about factors that were hypothesised to correlate with satisfaction in marriage. The participants were instructed not to put their names anywhere on the answer sheet so that total anonymity could be maintained. Participants were asked to answer each question with reference to her or his spouse. If she or he was divorced, they were to answer the questions about the partner from whom they were divorced, even if they had subsequently remarried. Originally, it was hoped that there would be enough divorced respondents to allow a comparison with those who were still married. In the event, there were only a few questionnaires completed by divorcees and so these participants' data were analyzed with the other (still married) respondents.

The first part of the questionnaire asked for background details. This section included questions on the respondent's gender and age, how long they had known their partner before getting married, how much of this time was spent as platonic friends (before becoming romantically involved), their age at marriage and how long they had been

married. This section finally asked married participants to rate their marriage in terms of satisfaction, on the five-point scale (extremely unsatisfied to extremely satisfied). Divorced participants were designated by the investigator as having the lowest satisfaction rating.

The participants were then asked to rate on a five-point scale how characteristic they thought a list of twelve descriptors were of their spouse at three points in time: when they first met, when they married and currently or at the point of divorce (if they were divorced). The scale ranged from "not at all characteristic of my partner" to "extremely characteristic of my partner". The third section of the questionnaire asked how important the respondents believed each of the same characteristics were in terms of their contribution to the overall quality of the participants' relationship at the same three time points. A five-point scale was provided for this process, ranging from "not at all important" to "extremely important".

The lists of characteristics used in both the second and third section of the questionnaire were compiled to provide four instances of three domains that were believed to be relevant to mate choice; alliance qualities ("Takes my side when others criticize me", "Trustworthy and dependable", "Contributes as much as I do to making the relationship work" and" Kind and understanding"), physical attractiveness ("Attractive appearance", "Good face and body", "Desirable to the opposite sex" and "Sexually magnetic") and supportiveness qualities ("Ambitious", "Financially secure", "Committed to home and family" and "Faithful").

Results.

Background variables: Comparing females and males.

T-tests were used to investigate sex differences in current age, length of time the respondent and their partner had known each other before becoming romantically involved, how much of this time had been spent as friends, age at marriage and length of marriage. The only significant result was that men married at a significantly older age (25.7 years) than women (23.6 years) ($t=2.02$, $p<.05$).

Background variables: Predicting satisfaction.

A stepwise regression was used to examine whether background variables alone could predict marital satisfaction. Firstly the background variables were checked to see if they were correlated with each other. It was found that the two variables were strongly associated; length of marriage and current age ($r = 0.885$, $df=82$, $p<.001$). These two variables were so highly correlated as to be effectively co-linear. Hence for the multiple regression, length of marriage was used to represent both of these variables, leaving five variables to be tested for their ability to predict marital satisfaction (age at marriage, gender, length of marriage, length of time the partner had been known before becoming romantically involved and how much of this time had been spent as "just good friends"). No model could be specified because none of the variables achieved the F probability for stepwise inclusion. Hence these background variables do not predict current marital satisfaction.

First meeting characteristic ratings: Comparing females and males.

T-tests were performed to investigate sex differences in the characteristic ratings given for the time of first meeting. The only difference found here was for

"financially secure" with women giving higher characteristic ratings to their partners than men (women = 2.94, men = 2.31; t = -2.326, p<.05). "Ambitious" approached significance in the same direction (women = 3.09, men = 2.52; t = -1.855, p<.07).

First meeting characteristic ratings: Predicting satisfaction.

Before using multiple regression to investigate the association between the characteristic ratings at first meeting and present relationship satisfaction, it was first necessary to examine associations between the variables. If the 12 items were successful in tapping three dimensions of partner choice, then three latent scales should be apparent in the respondents' responses. The Cronbach's alpha for all twelve items considered as a scale, however, was .815 suggesting high internal consistency and a single underlying dimension. To examine this further, a factor analysis of the ratings of first meeting impressions was carried out. Factor analysis organises multivariate data by grouping data into factors for analysis and thus reducing the data burden without having to simplify the questionnaire used to collect the data. Tables 7.1 and 7.2 below summarize the results of this analysis. Using eigenvalues greater than 1, the results indicated four factors. Using the Scree criterion, however, it can be seen that the explained variance shows a marked decrease after the third factor and so only the first three factors will be described.

The first factor seems to be general in nature; most of the descriptors showed a positive loading on it. In fact, the only two items which failed to load higher than .40 were "ambitious" and "financially secure". The second factor was harder to interpret since many of the items that loaded on it also show loadings on factor one. The following items do however, load greater than .40 on factor 2; "attractive appearance",

Table 7.1: Factor Analysis Results for Characteristic Ratings at First Meeting.

	Initial eigenvalues			Extraction sums of squares loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4.305	35.875	35.875	4.305	35.875	35.875
2	2.234	18.615	54.490	2.234	18.615	54.490
3	1.291	10.760	65.250	1.291	10.760	65.250
4	1.095	9.121	74.371	1.095	9.121	74.371
5	.702	5.851	80.222			
6	.591	4.929	85.151			
7	.484	4.031	89.182			
8	.392	3.263	92.445			
9	.285	2.378	94.823			
10	.246	2.054	96.877			
11	.204	1.701	98.578			
12	.171	1.422	100.000			

Table 7.2: Item Loadings on the First 4 Factors for Characteristic Ratings at First Meeting

	Component			
	1	2	3	4
Takes my side	.602	-.312	-.001	.391
Attractive appearance	.540	.598	-.068	.324
Ambitious	.205	.363	.649	.476
Trustworthy and dependable	.584	-.504	.079	.321
Good face and body	.681	.549	-.180	.108
Financially secure	.284	-.001	.836	-.322
Contributes to relationship	.715	-.223	-.169	-.003
Desirable to the opposite sex	.528	.617	-.237	-.182
Committed to home and family	.761	-.266	.042	-.096
Kind and understanding	.820	-.273	-.164	-.033
Sexual magnetism	.564	.500	.099	-.482
Faithful	.603	-.515	.058	-.341

"good face and body", "desirable to the opposite sex" and "sexual magnetism". This second factor appears to be more closely associated with physical and sexual attraction than the first. The third factor only contained two items that loaded greater than .40; "ambitious" and "financially secure". This final factor appears to represent economically supportive qualities.

The participants' factor scores on all three factors were then used in a stepwise multiple regression to see if they could predict marital satisfaction (see Table 7.3). Scores on Factors 1 and 2 made a significant contribution to the regression model. This model was significant ($F_{(2,70)}=9.649$, $p<.001$). The adjusted R^2 was .194. While Factor 1 scores had a positive value in the final equation, Factor 2 scores made a negative contribution. This suggests that the traits loading on the first factor (that is, all traits except "ambitious" and "financially secure") were positively correlated with marital satisfaction, while the second factor (containing the traits "attractive appearance", "good face and body", "desirable to the opposite sex" and "sexual magnetism") was negatively associated with marital satisfaction. This implies that marrying someone who initially displays traits indicating sexual and physical attractiveness results in a less satisfying relationship in later life.

Table 7.3: Results of Stepwise Multiple Regression of Factor Scores.

Variable	B	Beta	t	P
Factor 1 score	.442	.372	3.572	.001
Factor 2 score	-.332	-.279	-2.639	.01
Constant	4.000			

One reason for this may be that the importance of sexual attraction between the members of a relationship diminishes over time. Physical attractiveness of a partner becomes less important while companionship increases in significance (Barnard

2002). Physical attraction denotes good health and genetic quality, indicating that such a person would be good to mate with but, later in the partnership, qualities relevant to raising children and supporting the partnership become more central. In addition, physical attraction (especially in the case of men) is based upon novelty and thus subject to erosion with time whereas personality compatibility may improve over time as the two members of the partnership adjust to each other, resolve differences and jointly overcome external problems. In the same way that health and fertility are signalled by physical beauty, the qualities looked for to indicate a good ally may well be personality factors.

It may also be the case that less attractive partners try to compensate by offering other, more durable traits such as personality traits indicative of commitment and stability. Such "trade-offs" have been reported in studies examining personal advertisements (e.g. Bereczke, Voros, Gal and Bernath, 1997). One reason why some men may employ this trade-off strategy has been suggested by Gangestad and Simpson (2000). They propose that there are trade-offs between a man's genetic fitness (as signalled by physical attractiveness) and his willingness and ability to help in rearing children. Thus a less physically attractive man may attempt to increase his overall attractiveness by offering parental skills, as signalled by personality factors. Alternatively, very attractive partners attract extra-pair mating possibilities and this may make their partner less trustful and therefore less satisfied with the marriage.

The use of factor scores ties the present analysis very tightly to the specifics of the sample of respondents used in the study. The results might have wider applicability and be more theoretically informative if it was possible to derive meaningful scales

from the items. Thus two scales reflecting compatibility and sexual attraction were formed. These two scales were based on the results of the factor analysis above, which suggested that the parenting and alliance qualities are intermeshed to form one scale labelled "compatibility" and a second scale, which was labelled "sexual attraction". Items relevant to the Compatibility scale were: "Takes my side", "Trustworthy and dependable", "Contributes to relationship", "Committed to home and family", "Kind and understanding" and "Faithful". Items on the Sexual Attraction scale were; "Attractive appearance", "Good face and body", "Desirable to the opposite sex" and "Sexual magnetism". Two new variables were formed by summing respondents' scores over these items.

The alpha for the compatibility scale was .858 and alpha for sexual attraction scale was .857. The two scales were moderately correlated at .307. In a stepwise multiple regression using these two scales to predict current satisfaction, the compatibility scale was the only one to make a contribution in predicting marital satisfaction. The results of this analysis are shown in table 7.4 below. The model is barely significant however and the R^2 is a modest .042. It can be seen, therefore, that the better results come from the factor scores.

Table 7.4: Results of Multiple Regression on Two Scales Derived from Factor Analysis.

Variable	B	Beta	t	P
Compatibility	.045	.205	1.765	<.10
Sexual attraction	.023	.059	0.483	n.s.
Constant	2.666			

Characteristic ratings: Change over time.

In order to test if there was any change in the participants' ratings of characteristic traits over time, two difference scores were calculated for each of the twelve traits. This was done by subtracting the rating scores given by the participants at the point of first meeting from the scores given for the point of marriage (time period 1) and by subtracting the scores given at the point of marriage from the scores given for the present time or at the time of divorce if applicable (time period 2). A positive difference score indicates that there was a larger score given at the later stage (i.e. at the point of marriage in the case of time period one and the present score in the case of time period two) rather than the earlier stage. Conversely a negative value indicates a greater score given at the earlier stage and hence a decline in the rating over time.

To examine sex differences in these change scores, two 2 by 12 analyses of variance were conducted. The first analysis of variance used the twelve trait change scores for time period 1 (repeated measures) with sex (between groups) as the second independent variable. The main effect of sex was not significant ($F_{(1,52)}$=0.000, n.s.), however the effect of trait change was significant ($F_{(6.34,329.52)}$=6.185 $p<.001$). The interaction term was not significant ($F_{(11,737)}$ = 0.526, n.s.), indicating that change scores did not vary as a function of sex. The same analysis was performed for the time period 2 data. The main effect of sex was non-significant ($F_{(1,55)}$=3.710, n.s.). The interaction term was also non-significant ($F_{(11,770)}$=0.911, n.s.). Again the effect of trait change was significant ($F_{(6.12,336.74)}$=10.545 $p<.001$).

In order to examine changes in mate evaluation over time, an analysis of variance was performed using the change scores. The analysis of variance used the two change periods ("Time") as two levels of a within-subjects factor and the 12 traits ("Traits") as a second within-subjects factor with 12 levels. The Greenhouse Geyser correction is used where appropriate throughout the results. The effect of time was found to be significant ($F_{(1,67)} = 47.18$, $p<.001$). The mean change score for time period 1 is .303 and for time period 2 is -.187. The effect of traits was also found to be significant ($F_{(6.29, 421.9)} = 14.67$, $p<.001$) as was the time by trait interaction ($F_{(7.54, 505.3)} = 3.34$, $p<.001$). Tests for simple effects for each trait were conducted to explore the interaction term. A one-way repeated measures analysis of variance was used for each trait examining its change during the two time periods. The results of the simple effects test are summarized in Table 7.5. Only one test proved non-significant ("Financially secure": ($F_{(1,78)} = 0.02$, n.s.)

Table 7.5: Summary of Significant Simple Effects Tests.

Trait	F	d.f.	p	Time 1 mean change (and S.E.)	Time 2 mean change (and S.E.)
Takes my side when others criticize me	16.80	1,71	.001	.597 (.115)	-.028 (.112)
Attractive appearance	18.42	1,77	.001	.192 (.078)	-.308 (.090)
Ambitious	9.97	1,77	.01	.346 (.087)	-.103 (.123)
Trustworthy and dependable	9.81	1,78	.01	.203 (.079)	-.177 (.095)
Good face and body	34.92	1,78	.001	.076 (.056)	-.646 (.102)
Financially secure	0.02	1,78	n.s.	.646 (.118)	.671 (.140)
Contributes as much as I do to making the relationship work	22.47	1,78	.001	.342 (.102)	-.329 (.123)
Desirable to the opposite sex	13.41	1,77	.001	.115 (.068)	-.346 (.105)
Committed to home and family	4.76	1,78	.05	.291 (.083)	.038 (.096)
Kind and understanding	5.87	1,78	.05	.114 (.062)	-.203 (.110)
Sexually attractive	31.90	1,75	.001	.224 (.093)	-.605 (.111)
Faithful	17.14	1.78	.001	.456 (.111)	-.203 (110)

As can be seen in Table 7.5, the mean change scores for time period one were all positive and the mean change scores for time period 2 were all negative except for "commitment to home and family" and "financially secure". A positive change score indicates that the participant claimed that the trait was more characteristic of her or his partner at the later stage while a negative change score indicates that the participant claimed that the trait was more characteristic of her or his partner at the earlier stage. The data therefore show that at the time of marriage the participants assessed their partners more favourably than at the point of first meeting and that they currently evaluate their partners less favourably than at the time of marrying them. Why "committed to home and family" and "financially secure" should be the only two results to not show this trend is unclear. Although the former trait's time period two mean change score (.038) was positive, it was considerably and significantly less positive than the score for at time period one (.291). For "financially secure" the change was not only non-significant but both change scores were positive. The time period two mean change score (.671) was more positive (although not significantly so) than the time period one mean change score (.646).

Table 7.5 also shows that most of the characteristic rating scores change significantly more before marriage than after it. The average difference score between the ratings at the point of marriage and first meeting is greater than the difference between the ratings for marriage and the present. The exceptions to this are "kind and understanding", "attractive appearance", "facially attractive", "desirable to the opposite sex" and "sexually attractive" which show a greater change after marriage.

"Kind and understanding" is seen as being more characteristic of a partner at the point of marriage than it is at present. This might be because, before marriage, people are trying to impress prospective partners and thus appear to be kinder and more understanding than they really are. After a commitment has been made by both partners, they may well revert to their "natural" self and demonstrate less kindness and understanding. This is shown by the reversal in the sign of the scores for time period 2 (after marriage) for the trait of "kind and understanding". An alternative explanation is that "kind and understanding" is a trait that requires some time to assess. Although the participants were satisfied with how kind and understanding they believed their partners to be, they were then able to take more time in assessing this trait after a commitment was undertaken and thus the ratings given by participants changed more after marriage than prior to it.

The other traits that show greater change after marriage are related to physical attractiveness and physical appearance. The fact that the participants' ratings of these traits changed more after marriage may be a demonstration of the changing nature of marriage over time. As marriages progress, partners become more reliant on companionship and less on physical attraction (Barnard 2002). This finding may, of course, simply be an indication of the way in which physical attractiveness decreases with age.

Using changes in characteristic ratings to predict marital satisfaction.

In order to investigate how changes in characteristic rating scores during the relationship contribute to current marital satisfaction, a stepwise multiple regression was performed. Marital satisfaction was regressed onto all twenty-four change

variables (12 from each time period). The results of this analysis are summarized in Table 7.6 below. Three variables contributed to the final model. All were changes occurring between marriage and the present time. The model was significant ($F_{(3,67)}$ = 19.28, p<.001) and the adjusted R^2 was 0.459. The three variables were "contributes as much as I do to making the relationship work" (R^2 = .248), "trustworthy and dependable" (R^2 change = .146) and "sexual magnetism" (R2 change = .077). This result is suggestive of the increasing importance of companionship and dependability during marriage. However, sexual magnetism also increases in importance in satisfied marriages.

Table 7.6: Summary of Multiple Regression of Change Variables on Current Marital Satisfaction.

Variable entered	B	Beta	t	p
Contributes as much as I do to making the relationship work (Time 2)	.370	.289	2.89	.01
Trustworthy and dependable (Time 2)	.635	.385	4.11	.001
Sexual magnetism (Time 2)	.376	.300	3.09	.01

Correlations between characteristic ratings and importance at first meeting.

Associations between how characteristic the respondent believed the traits to be of their partner at first meeting and how important they claimed those traits to be at the same time were examined by correlation. Unsurprisingly, the two sets of data were closely associated with each other. Had a participant claimed that a trait was important but did not believe it to be characteristic of her or his partner, this might call into question the validity of one of the two ratings. It may be, however, that the respondent considered the trait to be important, but felt that she or he was unable to attract someone with that particular trait. The results of the correlational analyses are summarized in Table 7.7 below.

Table 7.7: Correlations Between Characteristic Ratings and Importance Ratings at First Meeting.

Trait	Correlation	p
Takes my side	.321	.01
Attractive appearance	.497	.001
Ambitious	.434	.001
Trustworthy and dependable	.238	.05
Good face and body	.466	.001
Financially secure	.309	.01
Contributes to relationship	.364	.001
Desirable to the opposite sex	.082	n.s.
Committed to home and family	.466	.001
Kind and understanding	.435	.001
Sexual magnetism	.552	.001
Faithful	.373	.001

As can be seen in the results presented in table 7.7, only one trait failed to show a significant correlation between importance at the start of a relationship and how characteristic it was of their partner. This was "desirable to the opposite sex" (r = .082, n.s.). A closer inspection of the data shows that "desirable to the opposite sex" was given a lower mean importance rating (2.15, s.e. = 0.13) than mean characteristic score (3.54, s.e. = 0.11). This suggests that although the respondents did not claim the trait to be very important to their overall relationship quality, they believed that it was quite characteristic of their partner. This may be an indication of the unconscious nature of attraction and mate selection; while not admitting that "desirable to the opposite sex" was an important trait, they were presumably attracted to their partner and so considered their partner to be attractive to the opposite sex.

Importance ratings at first meeting: Comparing females and males.

In order to examine sex differences in these results, a two (sex) by twelve (importance ratings of the traits at first meeting) analysis of variance was performed on the data. The results of this analysis can be seen in Table 7.8 below. The main effect of sex was not significant ($F_{(1,57)}$=0.098 n.s.), but the main effect of traits was significant ($F_{(7.22,411.36)}$=37.304 p<.001; see Table 7.9) as was the interaction between traits and sex ($F_{(7.22,411.355)}$=2.409 p<.02). Further investigation showed that the only trait to show a significant sex difference was "financially secure" ($F_{(1,59)}$=4.023 p<.05). The mean importance rating for this trait for men was 1.75 (se=0.242) and for women was 2.34 (se = 0.169).

The fact that female participants rated "financially secure" as being more important than the male participants did, concurs with the results presented by Buss (e.g. 1989) and other authors (e.g. Sprecher, Sullivan and Hatfield, 1994). Unfortunately, other expected sex differences were not found. "Ambition", "faithful" and "committed to home and family" were expected to be rated as being more important by women than by men, while men were expected to rate traits associated with physical beauty (such as "good face and body", "attractive appearance" and "desirable to the opposite sex") more than women did.

The absence of sex differences may be due to the fact that participants were recalling an event that had happened some time ago and about a process they might not have been consciously aware of at the time. Thus the participants may not have answered this question accurately. This failure to uncover the expected sex differences in

importance at first meeting could also be due to the more selective nature of human males. This does not explain why other investigators have reported positive findings.

Table 7.8: Main Effects of Importance Ratings at First meeting Including Results of Bonferroni Comparisons.

Trait Number	Trait name	Mean	Standard error	Bonferroni difference p<.001. This trait significantly higher than…
12	Faithful	4.422	.136	Sexual magnetism and below
4	Trustworthy and dependable	4.316	.126	Sexual magnetism and below
10	Kind and understanding	4.232	.117	Sexual magnetism and below
7	Contributes to relationship	3.949	.149	Takes my side and below
9	Committed to home and family	3.803	.193	Ambitious and below
11	Sexual magnetism	3.428	.132	Ambitious and below
2	Attractive appearance	3.326	.162	Desirable to opposite sex and below
5	Good face and body	3.097	.159	Financially secure
1	Takes my side	2.828	.149	Financially secure
3	Ambitious	2.567	.143	---
8	Desirable to opposite sex	2.342	.159	---
6	Financially secure	2.070	.152	---

The Bonferroni comparisons (presented in Table 7.8) shows that the traits that were rated as being the most important, were "faithful" (from the supportive group), "trustworthy and dependable" and "kind and understanding" (both from the good ally group of traits). The trait that was ranked the fourth most important was "contributes as much as I do to making the relationship work" (also from the good ally group). This indicates that the participants were looking for long-term partners who would not

only support the participant emotionally during the relationship, but who would also offer this support exclusively to her or him alone.

The traits, which follow these four in order of importance, are a mixture of the physical attractiveness and supportive groups of traits. The four least important traits, at first meeting, were surprising, since they not only include a trait from the attractiveness group ("desirable to the opposite sex"), as would have been expected (Buss and Schmitt, 1993), but there are also two traits from the supportive group ("ambitious" and "financially secure") and one trait from the good ally group ("takes my side when others criticize me"). The positioning of the latter three traits was surprising because these qualities were expected to be seen as being important in a long-term relationship. That is to say, the fact that a partner was able to invest financially in a family and who showed signs of emotional support would be preferred over a partner who did not demonstrate these qualities. Overall, however, the Bonferroni comparisons show that the qualities which are seen as being the most important in a long-term partner were those designed in this study to represent emotional support and that the traits designed to represent physical attractiveness were not rated as being as important in a long-term partnership.

First meeting importance ratings: Predicting satisfaction.

In order to investigate associations between importance ratings and present relationship satisfaction, the number of variables needed to be reduced to avoid capitalizing on chance. The analytic procedure undertaken on the characteristic ratings was repeated here. The Cronbach's alpha for all twelve items considered as a scale is .817 suggesting high internal consistency. A factor analysis of the ratings of

impressions at first meeting was carried out. The results indicated that three factors had an eigenvalue greater than 1 and, using the Scree criterion, all three factors should be examined. The results of the factor analysis were very similar to that performed on the characteristic score results above. This was not surprising in light of the correlations between the characteristic ratings and importance ratings at first meeting (see Table 7.7 above).

Table 7.9: Factor analysis of importance ratings at first meeting.

	Initial eigenvalues			Extraction sums of squares loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4.117	34.309	34.309	4.117	34.309	34.309
2	2.175	18.122	52.431	2.175	18.122	52.431
3	1.386	11.546	63.978	1.386	11.546	63.978
4	0.896	7.464	71.441			
5	0.756	6.377	77.819			
6	0.550	4.584	82.403			
7	0.502	4.184	86.587			
8	0.434	3.620	90.206			
9	0.410	3.416	93.623			
10	0.325	2.709	96.332			
11	0.239	1.992	98.324			
12	0.201	1.676	100.000			

Table 7.10: Loadings of items on first 3 factors for importance ratings at first meeting.

	Component		
Takes my side	.494	.068	.486
Attractive appearance	.668	.530	-.166
Ambitious	.482	.130	.690
Trustworthy and dependable	.625	-.504	.180
Good face and body	.514	.686	-.309
Financially secure	.453	.159	.554
Contributes to relationship	.561	-.427	-.296
Desirable to the opposite sex	.505	.425	.007
Committed to home and family	.720	-.417	-.192
Kind and understanding	.734	-.328	-.181
Sexual magnetism	.449	.588	-.258
Faithful	.711	-.363	-.090

The first factor is a general one. All items load greater than .40. The second factor has strong positive loadings from "attractive appearance", "good face and body", "desirable to the opposite sex" and "sexual magnetism". Interestingly, a number of items show strong negative loadings on this factor (i.e. "trustworthy and dependable", "contributes to relationship" and "committed to home and family"). This factor seems to represent a "raw sex appeal" element. That is, not only does it include positive loadings from traits which might be considered to indicate a "sexy" physical appearance, but also negative loadings from traits which might be considered to be indicating commitment from a partner. The third factor has positive loadings from "takes my side", "ambitious" and "financially secure". This factor seems to represent an element of support - both financial and emotional.

A stepwise regression was used to examine the extent to which factor scores on the first three factors predicted marital satisfaction. No model could be specified because none of the variables achieved the F probability for stepwise inclusion. Hence these early importance ratings do not predict current marital satisfaction. Because of the overlap of loadings on the three factors it was not possible to form three distinct conceptual scales.

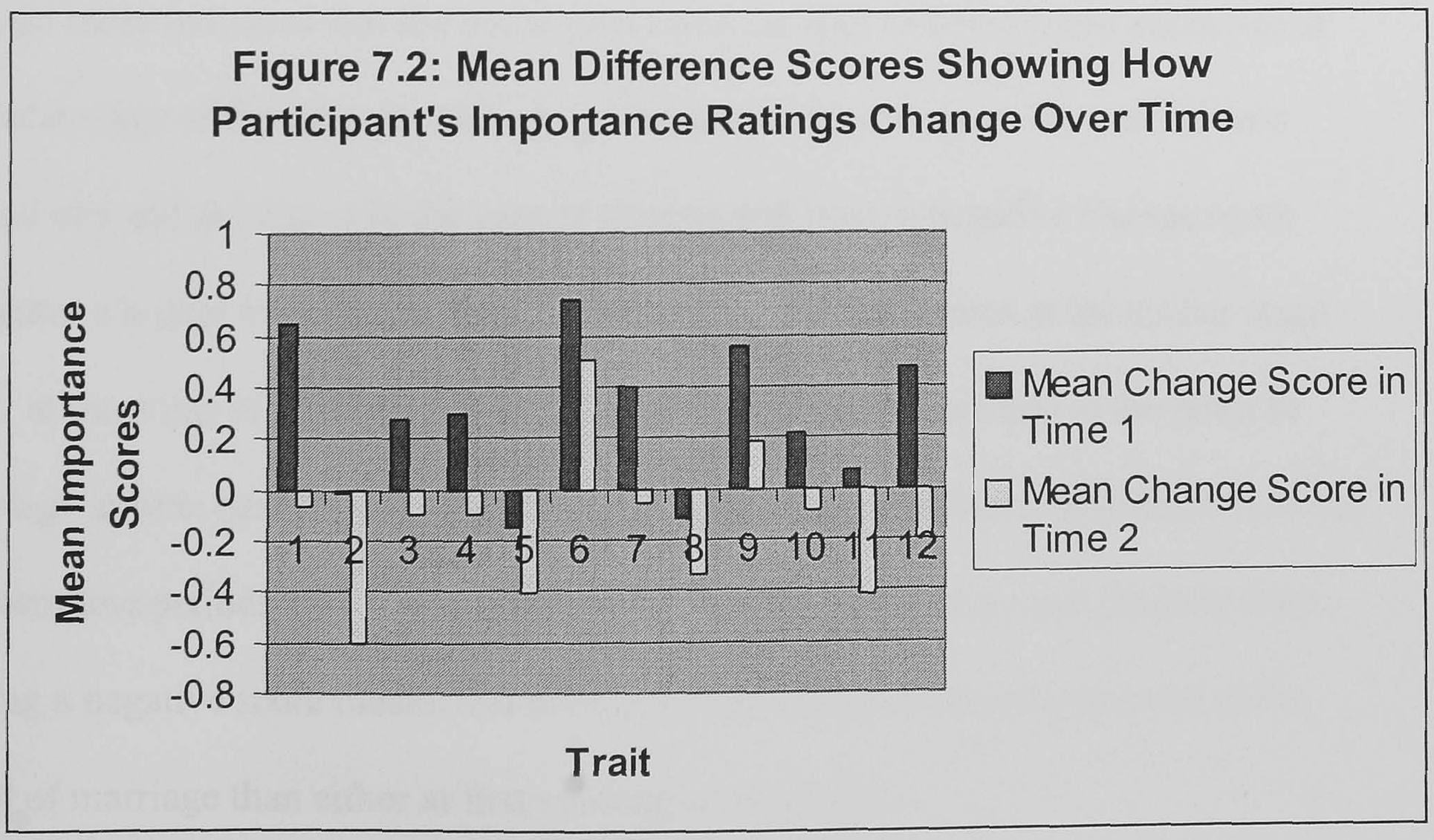
Importance ratings and change over time.

In order to test if there was any change in trait importance over time, two difference scores were calculated for each of the twelve traits. This was done by subtracting the importance rating scores given by the participants at the point of first meeting from the scores given for the point of marriage (Time 1) and by subtracting the scores given at the point of marriage from the scores given for the present time (Time 2).

These scores are summarized in Table 7.11 and figure 7.12 below. A positive difference score indicates that there was a higher score given at the later stage than at the earlier stage, a negative number indicates a higher score was given at the earlier stage than at the later.

Table 7.11: Mean Difference Scores Showing How Participants' Importance Ratings Changed Over Time.

Trait	Mean Change Score in Time 1 (S.E.)	Mean Change Score in Time 2 (S.E.)
Takes my side when others criticize me (1)	.644 (.113)	-.069 (.110)
Attractive Appearance (2)	-.016 (.086)	-.600 (.099)
Ambitious (3)	.279 (.078)	-.100 (.130)
Trustworthy and dependable (4)	.295 (.103)	-.100 (.129)
Good Face and Body (5)	-.148 (.084)	-.407 (.094)
Financially secure (6)	.738 (.111)	.500 (.136)
Contributes as much as I do to making the relationship work (7)	.400 (.115)	-.051 (.104)
Desirable to the opposite sex (8)	-.115 (.071)	-.333 (.111)
Committed to home and family (9)	.557 (.143)	.183 (.125)
Kind and understanding (10)	.213 (.071)	-.083 (.099)
Sexually attractive (11)	.066 (.084)	-.417 (.115)
Faithful (12)	.475 (.129)	-.200 (.106)



To examine sex differences in these findings, two analyses of variance were conducted corresponding to the two time periods. The change scores in the twelve traits was one (within subjects) independent variable and sex was the second (between subjects) independent variable. For the Time 1 data, there was no significant sex by trait interaction ($F_{(7.07, 403.03)} = 0.603$, n.s.). The same analysis was performed for the Time 2 data and again the interaction term was not significant ($F_{(6.68, 367.87)} = 0.980$, n.s.).

In order to further examine changes in importance ratings over time an analysis of variance was performed, using the change scores. The analysis of variance used the two change periods ("Time") as levels of a within-subjects factor and the 12 traits ("Traits") as a second within subjects factor with 12 levels. The Greenhouse Geyser correction is used where appropriate throughout the results. The main effect of time was significant ($F_{(1, 56)} = 18.105$, $p<.001$). For Time 1 (first meeting to marriage) the mean was .272 (S.E. = .061) whereas for Time 2 (marriage to present) the mean was -.132 (S.E. = .069). Similar to the characteristic ratings already reported, a positive change score indicates that the participant rated the trait as being more important at the later stage of the time period (e.g. at the point of marriage in the case of time period one and at present in the case of time period two); a negative change score indicates a higher importance given to the trait by the participant at the earlier stage (e.g. at the point of first meeting in the case of time period one and at the point of marriage at time period two). The fact that there was a significant difference between the two time periods with the earlier time having a positive score and the later time having a negative score means that the traits were held to be more important at the point of marriage than either at first meeting or at present.

Table 7.12: Means, Standard Errors and Post-Hoc Tests for the Main Effect of Traits

Trait number	Trait name	Mean	Standard error	Bonferroni difference p<.001. This change score is significantly higher than
6	Financially secure	.596	.082	Faithful (12) and below
9	Committed to home and family	.377	.091	Sexual magnetism (11) and below
1	Takes my side	.263	.076	Sexual magnetism (11) and below
7	Contributes as much as I do	.184	.087	Good face and body (5) and below
12	Faithful	.105	.088	----
4	Trustworthy and dependable	.096	.090	----
3	Ambitious	.087	.072	----
10	Kind and understanding	.070	.058	----
11	Sexual magnetism	-.184	.065	----
8	Desirable to opposite sex	-.211	.064	----
5	Good face and body	-.254	.055	----
2	Attractive appearance	-.289	.061	----

The main effect of traits was also significant ($F_{(11.65, 380.128)} = 18.317$, $p<.001$) although the interaction term was not ($F_{(6.788, 380.128)} = 1.456$, n.s.), showing that the traits changed uniformly over time. Table 7.12 below gives the means and standard error for the trait changes. The Bonferroni comparisons (presented in Table 7.12) show that the trait whose importance rating changed the most over time was "financially secure". This was seen by the participants as being more important at a later stage in the marrige, presumably so that the partner could help to support the family once it was started. It can be seen that the importance ratings for all of the traits from the attractiveness group ("sexually magnetic", "good face and body", "attractive appearance" and "desirable to the opposite sex") changed the least and that they were the only traits, which were considered to be more important at the earlier stages of the

relationship. This demonstrates the role of attractiveness as being more important in the initial stages of a relationship (in attracting potential partners) but being less important once a relationship had commenced. This is not to say that attractiveness does not serve a role in the maintenance of a relationship, but that its primary function may be confined to the initial stages of the relationship: in attracting potential mates.

Using changes in importance ratings to predict marital satisfaction.

In order to investigate how changing importance ratings during the relationship contribute to current marital satisfaction, a stepwise multiple regression was performed, where marital satisfaction was regressed onto all twenty-four importance change variables. A summary of the results of this analysis is shown in table 7.13.

Table 7.13: Summary of Multiple Regression of Importance Change Variables on Current Marital Satisfaction.

Variable entered	B	Beta	T	P
Faithful (Time 2)	.713	.455	4.05	.001
Contributes to making the relationship work (Time 1)	.431	.296	2.64	.05
Constant	3.83			

Two variables contributed to the final model. The first was an increase in the importance of "faithful" (between marriage and the present). The second was "contributes as much as I do to making the relationship work" (between first meeting and marriage). The adjusted R^2 of the model was 0.327 and the model was significant ($F_{(2,56)} = 13.117$, $p<.001$). The R^2 for the two variables were: "Faithful" ($R^2 = .240$) and "Contributes as much as I do to making the relationship work" ($R^2 = .087$). Since this model can be used to predict current marital satisfaction, it can be inferred that a more satisfied couple is one where at least one of the members of the dyad believes that there is an increase before marriage in both partners contributing equally to making the relationship work and that faithfulness increases in importance after

marriage. The first of these changes can be seen as making sure that the other partner is equally committed to the relationship and the second of these changes can be seen as a need for confirmation of that commitment.

Discussion.

The proposal in Chapter Five - that attraction to a long-term partner contains an element of looking for someone who can be a good ally and parent - has found some support in this study. Firstly, the hypothesis that a respondent who believes that her or his partner is a good ally will be more satisfied with her or his marriage received some support from the findings of this study. The traits included in the alliance qualities group (e.g. "takes my side when others criticize me", "trustworthy and dependable", "contributes as much as I do to making the relationship work" and "kind and understanding") all loaded on the first factor, which was positively correlated with current marital satisfaction in a multiple regression. It should be pointed out, however, that all but two ("ambitious" and "financially secure") of the other traits from the list presented to participants were also included in this factor. The second factor resulting from this analysis (including the characteristics of "Attractive appearance", "Good face and body", "Desirable to the opposite sex" and "Sexual magnetism") was negatively correlated with relationship satisfaction. This seems to indicate that although a general mix of alliance, supportiveness and physical attractiveness qualities are associated with a satisfying partnership, selecting a partner who is very physically and sexually attractive may result in a less satisfied relationship.

The change in the characteristic scores (between marriage and the present) of two of the traits from the alliance quality group ("contributes as much as I do to making the

relationship work" and "trustworthy and dependable") was also found to be correlated with current marital satisfaction; and the compatibility scale (derived from the results of the multiple regression) was weakly associated ($p<.10$) with marital satisfaction. These results suggest that a general mixture of positive traits indicating a combination of alliance, physical attractiveness and supportive qualities are found in the partners of people who have a more satisfied relationship. These findings, of course, could be the result of a general halo effect: those participants who were more satisfied with their relationship generally rated their partners higher. One way of testing whether or not this is true, would be to replicate this study with the addition of asking participants' partners to fill in a self-assessment questionnaire. In this way it might be possible to determine if partners really do possess the qualities that the participants claim. An alternative would be to initiate a longitudinal study where couples are followed through their relationship in real time using the rating scales employed on this questionnaire.

It was also suggested that since it would take longer to assess a potential partner's personality and intelligence, a person who was currently more satisfied with their partnership would have spent longer getting to know their partner before they committed themselves to the partnership. Kitson, Babri and Roach (1985) found that couples who knew one another for longer periods of time were happier in their marriages but no such correlation was found in the current study. It would seem, then, that although apparently there are elements to successfully selecting a partner beyond immediately accessible physical attraction, people who are more satisfied with their marriage take no greater or lesser time in making their selection than those who were less satisfied with their relationship.

This seems surprising in that if a person is using personality as a criterion for choosing a long-term partner and no extra time is being taken in order to gather information about those qualities, it raises questions as to how the person is collecting relevant data? One explanation could be that the less satisfied and more satisfied participants both assessed personality factors, only the less satisfied ones either made an incorrect judgement based on that information, or the partner was able to deceive the participant in some way.

An alternative explanation can be found in the courtship process, which was discussed in Chapter One. Perper (1989) described the human courtship process as taking place in a series of stages. One of the early stages involved the couple simply talking and finding out more about each other. If, as Perper claims, this talking phase is an integral part of the courtship process, then "getting to know" a potential partner is a key part of the process leading up to a mating decision. If a person is subsequently less satisfied with their relationship, this may be due to the person making an incorrect decision based on the information gathered in the talking phase.

Of course, the explanation may lie in the fact that there are several different factors, which cause marital dissatisfaction either singly, or in combination. Thus the less satisfied participants may have assessed the personality of their partner before committing to a long-term relationship, other factors (such as those explored in the studies reviewed above) may have caused the decrease in satisfaction.

The third hypothesis - that the characteristic rating scores should change more before marriage than after marriage - was supported. There was a significant difference in the mean rating change score in the two time periods. The exceptions were that "kind and understanding" (a trait from the good ally group) was found to change more after marriage, together with "attractive appearance", "facially attractive", "desirable to the opposite sex" and "sexually attractive" (all traits from the physical attractiveness group). The greater change for the physical attractiveness traits after marriage may simply reflect the fact that people tend to lose their physical beauty as they become older. The trait from the good ally group may well have shown a similar trend because the partner became less kind and understanding after they had extracted a commitment from the participant. Before commitment, the partner may have tried to make her or himself more attractive by appearing to be kind and understanding, but after marriage she or he could revert back to her or his "natural" state. Once in a relationship, a person does not need to "put on an act" in order to appear more attractive since it would be unlikely that the other person would break the partnership (Murphy, 2002), provided the change was not too dramatic.

The fourth hypothesis also found some support. Men, more than women, believed that their partner having a good face and body and being attractive to the opposite sex was more important to the overall quality of the relationship while women, more than men, placed greater importance on their partner's financial security. Also in common with previous findings, men tended to marry at a later age than women with a mean difference of 2.1 years.

It was also hypothesized that change in the characteristic scores should be predictive of current marital satisfaction. The results presented above showed that a model using the changes in the characteristic rating scores between marriage and the present of "contributes as much as I do to making the relationship work", "trustworthy and dependable" and "sexual magnetism " could be used to predict current marital satisfaction. To this can be added the finding that a model using the changes in the importance ratings of "faithfulness" (after marriage) and "contributes as much as I do to making the relationship work" (before marriage) can also be used to predict marital satisfaction. These findings can be seen as support for the idea that marriages change over time and in order to stay satisfied with their marriage, the partners have to be able to accept most of these changes.

Finally it was predicted that the importance ratings should change over time. This study discovered that the importance rating scores given to all the traits presented to the participants did change. Furthermore a majority of the traits had a positive change before marriage and a negative change after marriage, indicating that the traits were considered to be more important at the time of marriage than initially or since. One finding, which was not hypothesized, was that current marital satisfaction could be predicted by a model using an increase (between marriage and the present) in the importance given by participants to the trait of "faithful" and the increase (between first meeting and marriage) of the importance given to "contributes to making the relationship work as much as I do". The former change represents a positive assessment that the partner is equally committed to the relationship, while the latter alteration demonstrates the need for sexual fidelity in a partnership.

There was also an association between current marital satisfaction and an increase (between marriage and the present) in how characteristic three traits respondents considered to be of their partner. The three traits were "contributes as much as I do to making the relationship work", "trustworthy and dependable" and "sexual magnetism". This finding was, in part, unexpected. The changes in "contributes as much as I do to making the relationship work" and "trustworthy" can be explained by Barnard's (2002) claim that marriages become more reliant on companionship and less on physical attraction. The increase in the characteristic score of "sexually magnetic" between marriage and the present, however, is harder to account for. If Barnard (2002) is correct, physical attractiveness should become less influential in marital satisfaction as time goes on. One reason for this finding could be that "sexual magnetism" is not purely dependent on physical attractiveness. The trait was included in the study to represent the idea that "physical attractiveness" does not only comprise of physical beauty (e.g. facial features, body shape, etc.) but can also incorporate factors that are harder to explain and define, but which result in what might be described as "chemistry". The term chemistry may include the way in which the personalities of two people match well or the fact that they make each other laugh or feel "good" and is an attempt to acknowledge that the attraction between two people is not purely reliant on physical features. Thus, while physical beauty becomes less relevant over time in a long-term relationship, the sexual magnetism (which is not based purely on physical attractiveness) at least maintains its importance in supporting a relationship in the long-term.

This proposal is also supported by the results of the factor analysis of the importance ratings given by participants to the traits at first meeting. The second factor (which

was correlated with current marital satisfaction) not only included strong positive loadings on the factors of "attractive appearance", "good face and body", "desirable to the opposite sex" and "sexual magnetism" (all traits contained in the physical attractiveness group), but also strong negative loadings from the traits of "trustworthy and dependable", "contributes to relationship" and "committed to home and family" (three of the traits contained in the alliances group). This was seen as "raw sex appeal" and was positively correlated with marital satisfaction, showing that believing that "sexiness" in a potential partner is an important quality in selecting a person to form a satisfying relationship with.

The third factor resulting from the same factor analysis had positive loading from a number of traits indicating elements of financial and emotional support (e.g. "takes my side", "ambitious" and "financially secure"). Unfortunately, however, none of the factors were predictive of marital satisfaction. Future research could be directed at this area, looking in more detail into the role of non-physical attraction in maintaining a long-term relationship.

The results should be interpreted cautiously since only eighty-two participants were involved in this study. Future research needs to enlarge the sample and thus not only increase the generalisability of the findings, but also increase the confidence in the results from the multivariate tests and in the statistical power of all the analyses. Not only was the sample small but it may also have been unrepresentative of the adult population as a whole, since the sample was entirely drawn from the teachers of one school in the northeast of England. The respondents most probably would therefore

have come from a similar socioeconomic classification and may not be representative of the British population.

In common with many other studies of marital satisfaction, the current investigation was based upon questionnaire responses and there is no guarantee that the answers given by the participants were accurate. Firstly there is the possibility of respondents consciously attempting to create a favourable impression. In order to minimize this, however, the questionnaires were anonymous. Secondly, the participants' responses may have affected by demand characteristics such that respondents gave answers, which she or he believed the researcher wanted (in order to "help") or to give answers that she or he believed the researcher did not want (in order to hinder the study). This effect was minimized by not revealing the purpose of the investigation. A third issue is that of memory since the questionnaire asked participants about feelings and beliefs many years ago which may have been inaccurate. It is impossible to fully guard against this problem unless longitudinal research is conducted.

Despite these problems, the present method has produced similar results to already published investigations. Specifically male participants married at a later age to the female participants (e.g. Buss, 1989; Buss et al., 1990), men gave a greater importance to their partner's physical attractiveness than did women and women gave greater importance to their partner's financial status than did men (e.g. Feingold, 1992). The replication of these results implies that the methodology was valid. Adding to this validity, there was a correlation between the ratings given by participants to the importance of a trait and how characteristic that trait was of her or his partner at the time of first meeting.

This study has provided a number of original findings as well as confirming previously published results but there are still issues left to be answered. A number of future studies have been suggested, however a longitudinal investigation into the role of good ally qualities in a satisfying marriage would seem to be the next step. This should eliminate potential memory problems. If the results of this study are replicated by such an investigation, it would strengthen its validity, leading the way for other investigations.

CHAPTER EIGHT.

SUMMARY.

The series of investigations documented in the preceding chapters have provided a number of results and conclusions. In the first study (Chapter Three) both visually impaired and fully sighted participants were asked to rate how important a list of traits was in a potential long-term partner. It was proposed that, according to evolutionary-based theories, there should be no difference in the preferences shown by visually impaired and sighted participants for the traits presented. The findings reported in this chapter did show a high correlation between the importance given by sighted and visually impaired people to the traits ($r = 0.920$). The VI participants gave higher ratings to all the traits except for "good looks", which the sighted participants rated as being more important (although not significantly).

The correlational results support the theory of universal human mate selection preferences, while the lesser importance given to physical appearance by the visually impaired runs counter to the same proposal from evolutionary-based theory. The latter finding, does, however, conform to the common-sense view that visually impaired people will be less interested in how their partners look, since they cannot use this information to discriminate between potential partners.

Two explanations were proposed for these results. Firstly, it may be that VIP are relying on some other signal in order to assess either physical appearance, or the quality that physical appearance is signalling. Chapter Two discussed a variety of alternative, non-visual cues that may be candidates for such a process. These signals

would, of course, be available to sighted people too, although they may not necessarily be aware of them since visual cues so powerfully swamp other modalities. Since there seems to have been little work done on non-visual signals in mate selection (beyond some limited research on the role of pheromones), it was hoped that future studies would cast more light on this issue.

A second explanation (not mutually exclusive from the first) is that the generally accepted model of mating decisions being made after gathering all available information is not correct. Instead a sequential model proposed by Miller (1997) was discussed. This model suggests that mate selection involves a series of decisions rather than just one. Each decision is a hurdle that has to be cleared successfully before the next one can be attempted. The order in which the decisions are taken depends upon the person making the decision and the situation that she or he finds her or himself in. Thus one person (looking for a short-term relationship) may assess physical appearance first (as a cue to genetic fitness) only looking for other traits subsequently. Another person or the same person under different circumstances (looking for a long-term partner) may look first for another trait, such as financial security (signalling control over resources) before assessing the potential partner's physical attractiveness.

If this model is correct, then a visually impaired person could still hold physical appearance to be as important in a partner as a sighted person, but will not necessarily seek to assess the physical attractiveness of a potential partner until other qualities have been tested. In order to investigate this hypothesis further, a second investigation was carried out (Chapter Four) with the same participants, asking for traits to be

placed in sequence in the order that the participant would like to know information about a prospective long-term partner. In this study participants were presented with a series of cards, each with a trait of a potential partner written on it (e.g. "facial attractiveness" and "ambition"). They were then asked to identify the order in which they wanted information about a potential partner. It was therefore possible to ascertain if there were differences between the sighted and visually impaired groups in the order in which information was sought about a partner. Although there was a high correlation ($r = 0.761$) between the order in which the two sight condition groups prioritized the traits, importantly it was found that VIP gave significantly less priority to "facial attractiveness" than sighted people did. Visually impaired people seemed to be gathering other information about their prospective partners before assessing her or his physical appearance. This result supports Miller's (1997) model that people in different situations (such as varying degrees of sight) will look for information about a prospective partner in a variable order.

Chapter Five proposed that control over resources (for women) and physical attractiveness (for men) was not the only factor in attraction. Instead it was proposed that people looking for a long-term relationship would also assess potential partners for qualities such as being a good ally or having good parenting skills (see Buss and Schmitt, 1993). To examine this, two further studies were carried out. In the first of these (reported in Chapter Six) a new set of both visually impaired and sighted participants was recruited by e-mail. These participants were asked about a specific long-term relationship they had experienced in the past or were currently involved in. The questionnaire used in this investigation enquired about the different stages of the relationship. All the participants claimed to have gone through the same stages in their

relationship, in the same order, although not all of them had completed all of the stages. Few differences were found between the relationships of visually impaired and sighted participants. One important difference was that although many of the sighted respondents claimed to have been initially attracted to their partners because of physical appearance, there were only a small number of visually impaired participants who mentioned physical appearance and most of these mentioning only the partner's height (which can be determined roughly even when totally blind). Of the two VI responses that mentioned appearance factors other than height, one was partially sighted. Both sets of participants (but mainly the visually impaired group) cited other factors in initial attraction, such as intelligence, various personality traits and sense of humour. The use of these factors in the initial stages of attraction helps to support Buss and Schmitt's (1993) theory that good parenting skills are desired by both sexes and that these qualities could be detected by signals such as intelligence and personality traits. It is suggested not that visually impaired people are especially interested in looking for qualities in a partner denoting good parenting skills, but that sighted people are looking for more evident visual cues before concentrating on other factors. Visually impaired people, on the other hand, are not so reliant on visual signals and so they can detect and assess potential partners using other factors first.

In the second of these final studies (Chapter Seven) a group of fully sighted participants was recruited. They were asked to complete a questionnaire asking about a currently existing (or dissolved) long-term partnership. They were asked to rate how satisfied they were with the relationship now or at the point of divorce, where applicable. The participants were then asked to rate the importance of a list of traits in a long-term partnership at three points in time: when first meeting a partner, when

getting married and currently (or at the point of divorce where applicable). Participants were also asked to rate how characteristic the same traits were of their partner at the same three times. Correlations were examined between the characteristic and importance ratings and current marital satisfaction. A multiple regression was performed on the characteristic scores at first meeting. The traits included in this study thought to be indicative of a good ally (e.g. “takes my side when others criticize me”, “trustworthy and dependable”, “contributes as much as I do to making the relationship work" and “kind and understanding”) all loaded on a factor, which was correlated with current relationship satisfaction. In fact all but two ("ambitious" and "financially secure") of the traits presented to the participants were also included on this factor. Another factor from the same analysis which contained traits representing physical attractiveness (e.g. "Attractive appearance", "Good face and body", "Desirable to the opposite sex" and "Sexual magnetism") was negatively correlated with relationship satisfaction. From this result it was concluded that whereas choosing a partner who displayed a general mixture of traits indicating supportiveness, alliance qualities and physical attractiveness would be more likely to result in a more satisfied marriage, selecting a partner chiefly on the basis of physical and sexual attractiveness could lead to the opposite result.

No support was found for the hypothesis that spending more time in getting to know a person before committing to a long-term partnership resulted in a more satisfied marriage. The reasoning behind this hypothesis was that signals of a good ally (i.e. "takes my side when others criticise me", "trustworthy and dependable", "contributes as much as I do to making the relationship work" and "kind and understanding") take time to assess. One suggested explanation was that the "talking phase" of courtship

(as described by Perper, 1989) permits people to find out about a prospective partner before deciding to continue any further with the courtship.

If this talking phase of courtship is an integral part of selecting a partner, then people will take just as long in making a mating decision whatever the outcome turns out to be. That is to say, if people go through the talking stage of courtship in order to discover more about a potential partner then, whatever the final outcome of the relationship, everyone would seem to spend a similar amount of time before committing to a single partner. The reason for variability in how satisfied people find their relationships likely results from either making an incorrect mating decision about their partner based on the available data or the participant was mislead by the potential partner. Another explanation for this result, also put forward in this chapter, is that personality factors are assessed by everyone when selecting a partner and that there may be other factors working during the relationship, which decreases marital satisfaction.

The final study also found that changes in the characteristic ratings between marriage and the present of the three traits of "contributes as much as I do to making the relationship work", "trustworthy and dependable" and "sexual magnetism " could be used to predict current marital satisfaction. Current relationship satisfaction was also predicted by increases in the importance accorded to "faithfulness" (between marriage and the present) and the trait of "contributes as much as I do to making the relationship work" (between first meeting and marriage). These two results (along with the finding that all the importance ratings changed over time) were taken to signify the changing nature of long-term relationships; specifically that

companionship becomes more important in the latter stages of marrige and physical appearance less important as the possibilities of siring further children reduces and the need for a good ally to raise existing children (and grandchildren) increases (Barnard, 2002). Of course, another reason why physical attractiveness becomes less important over time, is that people become less attractive as they grow older. This could also explain the finding that "raw sex appeal" (that is the "chemistry" which is said to exist between the members of a marriage) is important in a satisfied relationship.

Several problems were identified with the studies reported above. One such problem that ran throughout the sequence of investigations was that of the modest size and non-representative nature of the sample populations. This means that the present findings could not be used to infer anything about a wider population. It is recommended, therefore, that any replications of any of these investigations should try to include a larger and more representative sample population. This would make the findings more generalizable to a wider population and would also increase the confidence in all the statistical power of all the analyses, particularly the multivariate tests.

It should be noted, however, that accessing large numbers of appropriate VI participants (aged between late teenage years and early twenties) is difficult, since there are - relative to sighted participants - very few such VIP. In order to overcome this problem and increase the numbers of VI participants, both totally blind and partially sighted people were included in the VI sample. Replications of these investigations or other studies involving VI participants, might find it advisable to differentiate between levels of sight (e.g. fully sighted, partially-sighted and totally blind) in order to see if the amount of sight available to a participant alters the pattern

of responding. One question that such a distinction might help to answer (and perhaps explain some of the unexpected results reported above) is: would a partially sighted person still use visual cues to physical attractiveness, or would she/he respond as if the small amount of sight available was of no use? If it was found that partially sighted people were more likely to act as if they had full sight (that is, they gave answers similar to sighted respondents), it might explain why some of the expected differences were not apparent in the studies reported above.

Another distinction that could have made a difference in these investigations is one of when the participant lost her or his sight. No attempt to obtain information on how long the participants had had their sight problem. It might be that some of them had only recently lost their sight (either becoming totally blind after having full or only partial sight). Someone who had spent the early developmental years of their life with at least some of their sight might wish to employ the same criteria to potential mates after the sight loss as they did before.

Chapter Four was vulnerable to a unique criticism in that the results presented there should only be interpreted with the consideration that the methodology was relatively untried. Although the findings of previous work (e.g. Buss et al., 1990) were used to guide the original purpose of the current investigation, it was difficult to directly compare the results of this study with previously published work. The system of presenting participants with a series of cards so that they could be selected in rank order has not, as far as could be determined, been widely used before now - neither has the question of the preferred order that participants seek information been asked before.

Chapter Six also presented a specific problem in the interpretation of its findings. This was that no enquiry was made to determine whether or not the partner who was being reported about was also visually impaired. It may be that there are differences between partnerships composed of two visually impaired people and those where only one member is impaired. This does suggest a line of investigation looking into the possibility of such differences. One Question that could be included in such future research could be if assortative mating (as regarding either physical attractiveness, personality traits or intelligence) is still present in couples where at least one of the dyad was visually impaired.

Two of the studies (Chapters Six and Seven) were based upon questionnaire responses. With such methods there can be no guarantees that the answers given by the participants are accurate. Firstly, it is possible that the respondent consciously attempted to create a favourable impression of her or himself. In order to minimize this, however, the questionnaires were anonymous. Another possibility is that the participants' responses may have been affected by demand characteristics such that they gave answers believed to be the ones that the researcher wanted (in order to "help") or to give answers that she or he believed the researcher did not want (in order to hinder the study). This effect was minimized, however, by not revealing the purpose of the investigation.

In Chapter Seven (as with many other studies about relationships) there is also the issue of memory. The questionnaire asked participants about feelings and beliefs held many years ago and the answers given may have been based upon memories, which

could have been inaccurate. It is impossible to fully guard against this problem unless longitudinal research is conducted.

The results of the studies reported here suggest further investigations that could be carried out. For example, additional work should be done on the mechanisms for assessing a potential partner for parenting and alliance qualities. Future investigations could also include visually impaired people as at least part of the sample population so that the visual element of attraction would not be so influential in the mate selection process and thus other elements could then be studied with greater clarity.

This now overlaps with par 3, p. 218. $ Remove first two sentences and consider whether you want to keep remainder of paragraph. If visually impaired people are to be included in further studies, however, a distinction must be made between totally blind and partially sighted people. If a purely totally blind sample used in an investigation, the effects of the limited amounts of sight a partially sighted person has could then be ruled out. In practical terms, there are difficulties in recruiting a sufficient number of young, totally blind participants for such investigations. An initial study could be carried out using official medical definitions of how much sight a person has, so that it can be determined how much sight a person needs before behaving in the same way as a sighted person in the matter of choosing a partner. Once this has been done, participants below this sight threshold (rather than simply totally blind people) could be used in the study sample, increasing the number of visually impaired people that it would be possible to include.

The failure to make such a distinction was a problem with the present series of studies. Although sight level was enquired about, it was not used in the analysis but rather to determine allocation to sight condition group (sighted versus visually impaired). The reason for not making a distinction between partially sighted and totally blind people was simply that there was an insufficient number in the latter group and so all visually impaired respondents were considered together. Some of the results from the studies reported above, which were expected to show a difference between the sighted and visually impaired groups did not: this may have been because the partially sighted VI participants reduced between group differences. Thus any replication of these studies should allow a distinction between differentially visually impaired participants.

In conclusion, the findings reported above have both supported some existing evolutionary psychological theories and shown that other ideas may need to be re-examined. The fact that there was a very close similarity ($r = 0.920$) between how the visually impaired and sighted participants rated the presented traits, supports the theory of universal human mate preferences. On the other hand, findings showing a difference in the priorities stated by the two groups of participants for when information was wanted about a potential partner shows that perhaps the way in which mating decisions are made is not as simple as first thought (see Miller, 1997) and the final study demonstrated that there are other factors tested for when assessing a potential partner. There is, however, further work which still needs to be done both in the area of what signals are used to indicate good parenting skills and good allies and in what nonvisual cues are being used by visually impaired (as well as sighted) people in short- and long-term partner selection.

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APPENDIX 1

VI-specific e-groups subscribed to:

1. ABLA (American Blind Lawyers Association).
2. ACA-BLIND (Academic list for South Africa).
3. ACCESS-L (An open forum for the free and unmoderated discussion of access).
4. ASTER-L (for ASTER users).
5. BCAB (British Computer Association of the Blind).
6. BlindAdult (primary focus on dating, relationships and sex).
7. BlindBlackMen.
8. BlindCook.
9. BLIND-CS (College students and professionals in the computer industry).
10. BlinDate (discussion of dating and relationships from a blind/v.i. perspective).
11. Blind-Diet.
12. BLIND-ETC (anything not covered by the other lists).
13. Blind-Friends.
14. Blind-Global.
15. BLIND-ISSUES.
16. BLIND-L (non-GUI computer use by and for the blind).
17. Blindnews.
18. Blind-Parents.
19. Blind-Singles.
20. BlindSum (summary of topics on blindness-related lists).
21. Blind-Teens.

22. BLINDTLK (discusses general topics of interest to v.i.p., their friends/relatives and anyone else who is interested in visual impairments.

23. BlindTrek.

24. BlndCompUse (v.i.p. computer users).

25. Books/Reading List.

26. BookTop.

27. BRAILLE.

28. Braille-l.

29. BrailleM (Braille music).

30. Brailletech.

31. brctr (Technical list devoted to the discussion of advancement and future of braille).

32. BRL-Monitor (magazine of the National Federation of the Blind).

33. BSPORTS (Blind Sports mailing list).

34. BUDDY-L (informal guide dog discussion list).

35. Computer_Professionals_With_LowViz.

36. DanBlind (Danish v.i.).

37. DOLPHIN-L (discusses multilingual synthesisers and screen reading programs).

38. DOS-discuss.

39. DUXUSER.

40. GMATVI (Government Money and the Visually Impaired).

41. HANDS (support list for high school and college students).

42. HOME-WORKERS.

43. BI-L (Israeli blind issues).

44. Internet-Shopping.

45. JFW (support list for Jaws for Windows speech software).

46. JUNO-L (guide dog discussion list).

47. K1000 (Kurzweil 1000 - a scanner often used by v.i.p.).

48. LOWVIS (clinical low vision discussion list).

49. MicroTalk (Microtalk products).

50. NABS-L (ACB) (The National Alliance of Blind Students' Symposium).

51. nabs-l (NFB) (National Association of Blind Students).

52. NAVHMail (National Association for Visually Handicapped).

53. NFB-BPJ (for blind journalists).

54. NFB-TALK.

55. ScanTalk.

56. SKYCLUB-L (Canadian National Institute for the Blind's Library).

57. SYNTHLIST (all users of text-to-speech.)

58. VIP-L (any issues of relevance to v.i.p. in Australasia).

59. WEBWATCH-L.

APPENDIX 2

Questionnaire Sent to e-lists (Chapter Six).

Hello everybody,

I am sorry that this will be off topic. I am a blind postgraduate student researching what makes people attracted to one another and how their feelings towards their partner changes (in both a positive and negative way) over time. I have reached a part of my study, which involves a short questionnaire. If you have been blind from birth or from an early age and have had at least one long-term (3 months or more) partner, I would appreciate it if you would help me by completing this questionnaire (below) and e-mailing your responses to me directly - do not answer on list. You need only answer the questions that apply to you. Please do complete and return the questionnaire to me, since I cannot continue with the rest of my thesis until I have enough responses to analyse. All of your information will be treated as confidential and your names will not appear in my thesis. My e-mail address is: r.p.trelfa@durham.ac.uk

I also apologise if you receive more than one copy of this, as I am sending it to more than one list. Please do not answer the questionnaire more than once. However if you know of someone that may want to answer the questionnaire as well, please feel free to pass it around your friends and family. The only criterion is that respondents should have been blind or severely visually impaired from an early age or birth. If you and your partner are intending to answer the questionnaire, then please do not compare answers before sending

them to me. The point is that I get YOUR answers, not what someone else wants you to say.

Please think of the longest relationship you have had and answer the questions below as fully as possible, thank you.

1. How old are you?

2. Are you male or female?

3. Are you blind or partially sighted?

4. Where did you first meet your partner?

5. How long has your relationship lasted/did last?

6. How did you meet your partner? (E.g. Were you introduced to each other by someone else, did your partner introduce her/himself, etc?)

7. Did you know anything about your partner before you met her/him? If so, what and how did you know about them? Did this information make any difference to you when you met her/him?

8. What were your feelings about your partner when you first met her/him? What was it about her/him that first caught your attention? Was there something about her/him that stood out from other people?

9. How long was it after meeting your partner before you realised that there was something special about her/him and/or that you were attracted to her/him?

10. How long after meeting your partner was it before you went on a date with her/him? Where did you go on the date? Whose idea was it to go on the date and who suggested where you went?

11. Did your feelings towards your partner change after your first date? If so, how?

12. How long after you met your partner was it before you kissed? Who initiated the kiss? Did this effect the way you felt about your partner and in what way?

13. At what point did you feel as if you were in an exclusive relationship with your partner?

14. A serious relationship can often be identified by one (or more) of three factors: living together, engagement, or marriage. Have you and your partner done any of these, which ones and in which order?

15. If you lived together, who suggested that you should move in? How long had you been in your relationship before this happen? Did your feelings towards your partner change after you started living together and if so in what way? Did you learn anything about your partner when you moved in together that you did not know about her/him before?

16. If you got engaged, who proposed to whom? If you proposed, what was it about your partner that made up your mind to do so? If your partner proposed to you, what was it about your partner that made up your mind to give the answer you did? Did your feelings about your partner change when she/he proposed to you or you proposed to her/him? If so, in what way?

17. If you married your partner, whose idea was it to do so? What was it about your partner that made you want to marry them? Did your feelings about your partner change after you married her/him? If so, in what way?

18. I am particularly interested in any differences there may be between sighted and visually impaired people's experiences of romantic partnerships.

Please discuss fully as possible any differences that you feel your visual impairment made in your relationship.

Thanking you all very much,

Richard Trelfa

r.p.trelfa@durham.ac.uk

APPENDIX 3

Questionnaire for Chapter Seven.

This is a questionnaire about the factors that affect our choice of marriage partners. It is part of a larger study for a doctoral dissertation at Durham University. Please do not write your name anywhere on the questionnaire so that your answers remain anonymous. Please fill this in privately and not in discussion with your partner.

We are keen to include men and women who have remained with their original marriage partner AND people who have married and subsequently divorced.

If you have never been divorced and are still married, then please answer the questions about your present relationship. If you have been divorced, please answer the questions below about the first marriage that you were divorced from (even if you subsequently remarried).

1. What sex are you? [ ] Male [ ] Female

2. How old are you?.....

3. How long did you know your partner before you married her/him? (Please answer to the most exact figure you can estimate in terms of years, months, or weeks)

....

4. How much of this time were you "just good friends" as opposed to being romantically involved (Please answer to the most exact figure you can estimate in terms of years, months or weeks)?.....

5. How old were you when you married?.....

6. Did you get divorced from that marriage?.....

7. How long have you been married/were you married?.....

8. If you are still married, how would you rate your satisfaction with the relationship currently? (Please tick one only)

[ ] Extremely satisfied

[ ] Very satisfied

[ ] Satisfied

[ ] Very unsatisfied

[ ] Extremely unsatisfied

9. This section is designed to allow a comparison of your feelings at three points in your relationship: (1) When you first met your partner, (2) when you married your partner and (3) now (if you are still married) or at the point of divorce (if you divorced). Please indicate how you would rate your partner on the following qualities using the scale below:

1 = not at all characteristic of my partner

2 = somewhat characteristic of my partner

3 = quite characteristic of my partner

4 = very characteristic of my partner

5 = extremely characteristic of my partner

FACTOR	SCORE AT FIRST MEETING	SCORE AT MARRIAGE	PRESENT SCORE OR SCORE AT DIVORCE
Takes my side when others criticise me			
Attractive body			
Ambitious			
Trustworthy and dependable			
Facially attractive			
Financially secure			
Contributes as much as I do to making the relationship work			
Desirable to the opposite sex			
Committed to home and family			
Kind and understanding			
Sexually attractive			

10. Please indicate how important each of the following factors were or are, in terms of their contribution to the overall quality of your relationship at these three times.

1 = not at all important
2 = somewhat important
3 = important
4 = very important
5 = extremely important.

FACTOR	SCORE AT FIRST MEETING	SCORE AT MARRIAGE	PRESENT SCORE OR SCORE AT DIVORCE
Takes my side when others criticise me			
Attractive body			
Ambitious			
Trustworthy and dependable			
Facially attractive			
Financially secure			
Contributes as much as I do to making the relationship work			
Desirable to the opposite sex			
Committed to home and family			
Kind and understanding			
Sexually attractive			

Thank you. We are very grateful for your co-operation.