Exploring the Match between People and their Guide Dogs

A thesis presented in fulfilment of the requirements for the degree of
Doctor of Philosophy in Veterinary Science
at Massey University - Turitea
Aotearoa/New Zealand

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Abstract

The relationship between guide dog handlers in New Zealand and their guide dogs was investigated to identify the reasons why some partnerships are successful while others are not. A two-part study was designed to explore the match between the handler and the dog to improve the outcome of the matching process. A focus group discussion with people who had a range of visual acuity and experience with mobility aids was conducted as a preliminary measure to help develop the survey questionnaire that was used in the second part of the study.

Fifty current and/or previous handlers, who had used a total of 118 dogs, were interviewed about their prior expectations and the outcome of the partnerships. Results indicated that the majority of matches were successful, and quality of life was improved for most participants because of using a dog. Around a quarter of the matches were considered unsuccessful, although not all mismatched dogs were returned. Mismatches arose predominantly from problems concerning the dogs' working behaviour followed by the dogs' social/home behaviour. However, dogs were also returned for health problems and a few were returned for personal issues concerning the handler.

Compatibility between the handler and the dog, and the fulfilment of expectations were positively associated with better matches. Factors relating to mobility, including a handler's ability to control a dog, made the biggest contribution to success, but non-work related issues, such as companionship and enhancement of social interactions were also significant. Other factors that appeared to be associated with a good outcome included an accurate assessment of workload, having a good relationship with the guide dog instructor, and having a little useful vision - especially if this deteriorated over the time a dog was used. Other findings suggested that the use of a dog improved travel performance, regardless of how well the participants' perceived their travel ability to have been before the dog was acquired, and that second dogs were less favoured than the first ones. These results have permitted a series of recommendations to be proposed to the guide dog industry regarding characteristics of handler and dog that are important for a successful match.

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a) is the original work of the candidate, except as indicated by appropriate attribution in the text and/or in the acknowledgements;

b) that the text, excluding appendices/annexes, does not exceed 100,000 words;

c) all the ethical requirements applicable to this study have been complied with as required by Massey University, other organisations and/or committees which had a particular association with this study, and relevant legislation.

Ethical Authorisation Codes:

- Massey University Human Ethics Committee 98/204
- Manawatu/Whanganui Health and Disability Ethics Committee 39/98
- Auckland Health and Disability Ethics Committee 99/04

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I couldn't have done it without you.

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Notes on the Text

1. Explanations of key terms used throughout the thesis, which were current at the time of writing, can be found in the Glossary of Terms and/or with the use of footnotes.

2. Job titles cited in 'personal communications' were current at the time of writing this thesis.

3. Selected copies of papers arising from this research can be found in Appendix D, and references are supplied throughout the text for papers not included in the appendix.

4. The style of the content, and the software used to write this thesis is compatible with the Royal New Zealand Foundation of the Blind's (RNZFB) technology to enable RNZFB members and staff to electronically access the information, as per discussions with the RNZFB's Information Service.

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Abbreviations

See the Glossary of Terms for an explanation of some of the following:

AHDEC	Auckland Health and Disability Ethics Committee
ANOVA	Analysis of variance
ARMD	Age related macular degeneration
B	Behavioural in nature
BP	Before present
CS	Compatibility Scale
D	Dog related or Difficulty regarding travel
FES	Fulfilment of Expectations Scale
GDBA	Guide Dogs for the Blind Association (UK)
GDS	Guide Dog Services (New Zealand)
GR	Golden retriever
GSD	German shepherd dog
H	Handler related
ICC	Intra-class correlation coefficient
IFGDSB	International Federation of Guide Dog Schools for the Blind
KMO	Kaiser-Meyer-Olkin (value)
L	Limitations regarding travel
LR	Labrador retriever
M	Mobility
MANOVA	Multivariate analysis of variance
MUHEC	Massey University Human Ethics Committee
MWHDEC	Manawatu/Whanganui Health and Disability Ethics Committee

NW	Non-work related
O	Orientation
O&M	Orientation and Mobility
P	Physical in nature
PCA	Principal Components Analysis
PPWS	Percentage of preferred walking speed
RNZFB	Royal New Zealand Foundation of the Blind *Te Tuapapa o te Hunga Kapo o Aotearoa* Formerly known as the Royal New Zealand Foundation *for* the Blind
SPSS	Statistical Package for the Social Sciences
T	Travel performance i.e. collective O and M
W	Work related

Glossary of Terms

The following explanations and descriptions are provided for the purposes of this research:

Age Related Macular Degeneration (ARMD)
See *Macular Degeneration.*

Blindness
See *Visual Disability.*

Cataracts
See the RNZFB's practical aid to understanding vision impairment on page xxvii.
Pathologic condition. Opacity or cloudiness of the lens, which can prevent a clear image from forming on the retina. May be congenital, caused by trauma, disease or age (Cassin & Solomon, 1997). May cause blurred vision and sensitivity to glare.

Client (of the RNZFB's Guide Dog Services)
A Guide Dog Services client is a person who is either currently or has previously used a guide dog, and/or is on the waiting list for a new dog.

Compatibility
The behavioural, physical and psychological fit of the handler-dog team concerning work (mobility) and non-work related issues, as described by the guide dog handler.

Diabetic Retinopathy
See the RNZFB's practical aid to understanding vision impairment on page xxvii.
A variety of pathologic retinal changes characteristic of chronic diabetes mellitus. A major cause of blindness that may be proliferative or nonproliferative. Visual symptoms include blurred vision, sudden loss of vision in one or both eyes, and black spots or flashing lights in the visual field (Beers et al., 1999).

Glaucoma
See the RNZFB's practical aid to understanding vision impairment on page xxvii.
Pathologic condition. Group of diseases characterised by increased intraocular pressure resulting in damage to the optic nerve and retinal nerve fibres. Preventable by drugs or surgery (Cassin & Solomon, 1997). May cause tunnel vision, decreased night vision and a blurring of central vision when advanced.

Guide Dog
See also *Service Animals/Dogs.*
In New Zealand a guide dog may be defined as a service dog that has been trained and certified by the RNZFB's GDS for the purpose of guiding people who are blind or sight impaired.

Guide Dog Handler and Guide Dog Handler-Owner
A guide dog handler is a person with a visual disability that uses a RNZFB guide dog as an aid to travel. Guide dogs in New Zealand are bred, purchased or received as donations, and are trained by the RNZFB's GDS. Although the dogs live with, and are used by, the guide dog handlers, the dogs remain the legal property of the RNZFB. However, this policy is currently under review with the intention of providing the handlers with the option of legal ownership one year after graduating with their dogs. A small percent of people have their own pet dogs trained and validated by the RNZFB's GDS as qualified guide dogs; these people are known as guide

dog handler-owners and their dogs remain their legal property. Note: For the purposes of this research, all persons who use guide dogs are referred to as handlers.

Guide Dog Instructor and Orientation and Mobility (O&M) *Instructor*
Guide dog instructors and O&M instructors are both qualified to teach people who are blind or sight impaired to use a mobility tool as an aid to travel. Guide dog instructors (who are also qualified *guide dog trainers* - see below) are O&M instructors who are also qualified to assess, match and train people who apply to be trained with a qualified guide dog, and are responsible for ongoing follow up. An O&M instructor is qualified to teach people who are blind or sight impaired to use a mobility aid, other than a guide dog. Guide dog instructors are also responsible, within their demographic region, for puppy development, breeding stock, guide dog training, canine health co-ordination, boarding dogs, adoption services, cadet (trainee) support, funding development/public relations and some offshore services.

Guide Dog Services (GDS)
A specialist service of the Royal New Zealand Foundation for the Blind (RNZFB - see below) offered free to RNZFB members. GDS is part of the RNZFB's Adaptive Living Services, which teaches members to adapt their everyday techniques to live with sight loss and maintain independence. Funded 100% by voluntary donations.

Guide Dog Trainer
A person who is qualified to train dogs to become certified guide dogs.

Matching
The process of selecting the most suitable guide dog available for a particular individual.

Macular Degeneration
See the RNZFB's practical aid to understanding vision impairment on page xxvii.
Pathologic condition. Usually age related (age related macular degeneration (ARMD)), and is the most common cause of vision loss after age 60, but can occur at any age. Group of conditions that include deterioration of the macula, resulting in loss of sharp central vision, with no loss of peripheral vision. Two types - dry and wet. (Cassin & Solomon, 1997).

Mobility
See *Orientation and Mobility.*

Optic Atrophy (Leber's disease or Leber's hereditary optic atrophy)
Pathologic condition. Characterised by rapidly progressive optic nerve degeneration affecting both eyes. No known treatment; vision stabilises and is not totally lost. Occurs in young men ages 20-30. Rare; hereditary. (Cassin & Solomon, 1997).

Optic Neuritis
Pathologic condition. Inflammation of the optic nerve. Characterised by rapid onset of decreased vision, usually accompanied with a central visual field defect. (Cassin & Solomon, 1997).

Orientation
See *Orientation and Mobility.*

Orientation and Mobility (O&M)
Orientation (O), Mobility (M), and when used collectively, O&M, are explained as three separate entities. Orientation refers to the ability to establish and maintain an awareness of one's position in space relative to other objects in the environment, mobility refers to the act of purposeful movement using a tool such as a long cane, low vision aid, electronic aid or a guide

dog, and O&M refers to the process of travelling through the environment safely and efficiently (adapted from La Grow & Weessies' (1994) definitions of orientation and mobility).

Orientation and Mobility (O&M) Instructor
See *Guide Dog Instructor.*

Retinitis Pigmentosa
Retinitis: Pathologic condition. Inflammation of the retina. A progressive retinal degeneration in both eyes. Night blindness, usually in childhood, is followed by a loss of peripheral vision (initially as a ring shaped defect), progressing over many years to tunnel vision and finally blindness. Hereditary. (Cassin & Solomon, 1997).

Retired Dogs, Returned Dogs and Withdrawn Dogs
Dogs that stop working as guides at age eight years or older are classified as 'retired', including dogs that died after this age. 'Returned' dogs are dogs younger than eight years that did not succeed as guides for particular handlers (including dogs that were not owned by the RNZFB's GDS). It should be noted that many dogs that are returned are rematched by the RNZFB's GDS to other handlers with varying degrees of success. Dogs that were returned but not rematched were classified as 'withdrawn'. Withdrawn dogs may be rehomed, kept as a pet by the handler, or work for a different service. In the latter scenario, these 'change of career' service dogs may become drug detector dogs for the Ministry of Agriculture and Fisheries, police dogs or assist people who are hearing impaired.

Retrolental Fibroplasia (obsolete term for Retinopathy of Prematurity)
Retinopathy: Pathologic condition. Non-inflammatory degenerative disease of the retina. Series of destructive retinal changes that may develop after prolonged life-sustaining oxygen therapy is given to premature infants... Sometimes regresses; other times a peripheral fibrotic scar forms that detaches the retina. Can result in vision loss or blindness. (Cassin & Solomon, 1997).

Returned Dogs
See *Retired Dogs.*

Royal New Zealand Foundation of the Blind (RNZFB)
Te Tuapapa o te Hunga Kapo o Aotearoa
Formerly known as the Royal New Zealand Foundation *for* the Blind. The agency in New Zealand that provides people who are blind or sight impaired with the skills they need to adapt and become independent within the visual world. The majority of funding is received from voluntary donations and the remainder by government contracts.

Service Animals/Dogs, Therapy Animals/Dogs and other Working Dogs
Service animals, including the service dog (or assistance dog) are trained to meet the disability-related needs of their handlers. The law protects the rights of individuals with disabilities to be accompanied by their service animals in public places. Service animals are not considered pets. Examples include guide dogs (see *Guide Dog*), hearing dogs for the deaf, mobility assistance dogs, Top Dog Companions and seizure-alert dogs. Therapy animals provide people such as the elderly, those hospitalised/institutionalised and/or with disabilities, with contact to animals. Therapy animals are usually the personal pets of their handlers, and work with their handlers to provide services to others. As therapy animals are not classified as service animals, there are no provisions in law for people to be accompanied by therapy animals in public places. Other working dogs in New Zealand include Search and Rescue Dogs, Farm Dogs, Ministry of Agriculture and Forestry Dogs, Aviation Security Dogs, Customs and Police Dogs, Royal New Zealand Airforce Dogs, Prison Dogs (drug detection) and Arson Dogs.

Sighted Guide
A sighted guide is a person with vision who serves as a guide to a person who is blind. The technique involves the person who is being guided grasping the upper arm of the guide, directly above the elbow, and following one step behind.

Sight Impairment
See *Visual Disability.*

Therapy Animals/Dogs
See *Service Animals/Dogs.*

Trainer
See *Guide Dog Trainer.*

Visual Disability - Blindness (total vision loss) and Sight Impairment (partial vision)
See the RNZFB's practical aid to understanding vision impairment on page xxvii.
Blindness refers to having no useful vision or extremely limited levels such as the ability to distinguish between light perception and projection only. In New Zealand, persons are considered legally blind if their visual acuity is less than 3/60 in the better eye after the best possible correction, or their visual field does not subtend 10 degrees at its widest angle. A person who is sight impaired (functional deficit) has loss of vision to the degree of being eligible to receive services from the RNZFB. Persons are eligible if their visual acuity is less than 6/24 in the better eye after the best possible correction, or their visual field does not subtend 20 degrees at its widest angle. (La Grow, 1992). For those with multiple disabilities, the individuals must have sight impairment as their primary disability.

Withdrawn Dogs
See *Retired Dogs.*

Working Dogs
See *Service Animals/Dogs.*

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1
Introduction and Overview

1.1 Introduction

The guide dog, like the long cane[1], is a primary mobility aid intended to enhance the lifestyle of people with a visual disability (blind or sight impaired) by facilitating independent travel (Deshen & Deshen, 1989; M. E. Goddard & Beilharz, 1984; Oxley, 1995). Additional benefits imparted to a guide dog handler (the person who uses a guide dog) include friendship, companionship, increased social function, and improved self-esteem and confidence (Delafield, 1974; Muldoon, 2000; Refson, Jackson, Dusoir, and Archer, 1998, 1999; Sanders, 1999, 2000; Steffens & Bergler, 1998; Zee, 1983).

The process of producing guide dogs involves the selection and breeding of suitable dogs, raising and socialisation of the pups, and their subsequent training as mobility aids (Ireson, 1991; Pfaffenberger, Scott, Fuller, Ginsburg, & Bielfelt, 1976; Purves & Godwin, 1981; Whitstock, Frank, & Haneline, 1997). The pairing of a handler and a guide dog involves the matching of a trained dog to its handler, the training of the handler and dog as a team, and ongoing follow-up. Matching the person and the dog is a process of finding the most suitable guide dog available for that individual, and a successful match is one of ongoing satisfaction with the partnership.

In New Zealand, the Royal New Zealand Foundation of the Blind's (RNZFB) Guide Dog Services (GDS) is the organisation responsible for the production of guide dogs and the matching, training and the outcome of the handler-dog team. These processes are discussed further in Chapter 3, and descriptions of the RNZFB, the RNZFB's GDS, Guide Dog Handler, Guide Dog and related terminology throughout the thesis can be found in the Glossary of Terms on page xxiii.

[1] The long cane is a long, white or silver-grey cane that allows the pedestrian with a visual disability to determine the nature of his or her immediate surroundings through physical contact with the environment. Long canes may be rigid, folding, or telescopic.

1.1.1 The research problem

Not all handler and guide dog partnerships are successful. Although some dogs may be rematched to other people, the consequences of an unsuccessful pairing (mismatch) may be severe in terms of the reduction in mobility and quality of life for the handler, and cost in time and resources for the guide dog schools (Nicholson, Kemp-Wheeler, & Griffiths, 1995). As a result, guide dog school personnel worldwide pay a great deal of attention to the process of matching a dog to a handler, and although there is some information available concerning this process there is a paucity of literature on the success or failure of the match or the outcome of the partnership.

Although a guide dog is principally an aid to mobility, the success of a team may not be solely dependent on the dog's ability to lead an individual safely and efficiently through the environment. Factors other than orientation and mobility (O&M)[2] such as those relating to social situations and home environment are considered when making matches (Farrugia, Gillard, & Tomlinson, 1998). Indeed, Lane, M^{c}Nicholas, and Collis (1998) suggested that the dog's effects on enhancing the handler's social interactions might be at least as important as increased mobility and independence. Matching is an art as much as a science, and there may be no such thing as a perfect match. However, it is proposed that ongoing satisfaction with the partnership depends upon the degree of compatibility[3] between the person and the dog, and that there are key factors to be considered that have the potential to influence the success or failure of the match. Hence, the purpose of this research was to explore handler and guide dog relationships, from the handlers' perspective, to identify characteristics of handler and dog that will improve the outcome of the matching process.

Justification for the study

Although guide dogs are provided free of charge to the handlers, each dog costs around $23 000 to train (at around 18 months of age), and a further $5 000 over its lifetime. In addition to the consequences of a mismatch, as mentioned above, the need for a research

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[2] Orientation refers to the ability to establish and maintain an awareness of one's position in space relative to other objects in the environment, and mobility refers to the act of purposeful movement using a tool such as a long cane, low vision aid, electronic aid or a guide dog. Collectively, O&M refers to the process of travelling through the environment safely and efficiently (adapted from La Grow & Weessies, 1994).

[3] Compatibility can be defined as the behavioural, physical and psychological fit of the handler-dog team concerning work (mobility) related and non-work related issues, as described by the handler.

programme to improve matching in order to increase efficiency and reduce expenditure was highlighted at a workshop involving the RNZFB's GDS and Massey University (Strategic Planning Veterinary Seminar, August 1996).

Understanding what makes a successful partnership is becoming increasingly important as during the last decade there has been a steady increase in the number of handler-guide dog teams graduating in New Zealand, as well as in the number of other service (or assistance) animals. These numbers are projected to continue rising (I. Cox, General Manager, RNZFB's GDS, personal communication, July 1998) and it may be assumed that the number of unsuccessful matches is likely to increase relative to the total number of matches made. This trend is also apparent overseas, as illustrated by a study conducted by Eames, Eames, and Diament (2001) who estimated a 10% growth in guide dog use in the USA between 1993 and 1999.

To summarise, this research will be intrinsically important for the guide dog industry in several ways. It examined, in a real-life setting, the outcome of the matching process; a process that is widely practised, but little assessed. The results will be of value, as more matches are being made and guide dogs are expensive to produce, as well as being expensive in personal terms for all concerned if a match is unsuccessful. Since limited research into the use of guide dogs in general has been conducted, the study will advance knowledge in the field. In addition, the research design for this study used both qualitative and quantitative methodologies to understand the concepts being examined, that is, specifying the quality of the relationships between handlers and dogs, and quantifying these relationships. This triangulation of methods, recommended by Mays and Pope (1995) and Pernice (1996) to deepen understanding, has not been widely used in studies of people with visual disabilities, so it is feasible that useful methodological findings will be yielded.

1.2 Overview

1.2.1 Methodology

As the literature review (Chapter 2) and the background information on guide dogs in society (Chapter 3) will show, little empirical or theoretical literature exists on the topic of handler and guide dog relationships. Hence, an exploratory approach to this research was taken.

The research was begun by way of a qualitative approach as the secondary method, where the resulting data was used as a basis for collecting and interpreting the quantitative data (the primary method), that is, the 'quantitative primary-qualitative first' method (Morgan, 1997). An inductive (data-driven) method was employed to tease out themes and patterns of data, and a deductive (theory-driven) method was used to examine what these results might mean in practice.

The research was conducted in two stages: a preliminary stage to collect the qualitative data via a focus group discussion within the locality (Chapter 4), and a cross-sectional survey to collect quantitative data via personal interviews nation-wide (Chapters 5-10). The qualitative data was subjected to content analysis. The quantitative data was analysed descriptively to explain the phenomenon, and parametric and non-parametric statistics were used to examine the relationships among variables and groups. An outline of the thesis chapters is provided later in this chapter in section 1.2.2.

Ethical approval process

All the ethical requirements applicable to this study have been complied with as required by Massey University, the RNZFB, Ngati Kapo[4], and all 15 of New Zealand's regional Health and Disability Ethics Committees. Advice was sought from Massey University's Animal Ethics Committee as to whether an 'animal ethics' application should be made. This was deemed unnecessary by the committee, as no guide dog would be affected by the research.

Ethical approval for the first stage of the study (the focus group) was obtained from Massey University Human Ethics Committee (MUHEC) (protocol reference: 98/204), and the Manawatu/Whanganui Health and Disability Ethics Committee (MWHDEC) (protocol reference: 39/98) in February 1999. Multi-centre (national) ethics approval was required for the second stage (the survey) in addition to MUHEC and MWHDEC consent, as the intended participants resided in more than one regional area.

[4] Ngati Kapo is an iwi (tribe) based organisation that provides support for its RNZFB members by advocacy, peer support and family development.

To expedite the second stage, the MWHDEC, as the primary (local) ethics committee, forwarded the national application form for ethical approval of a research project to 13 of the other 14 regional Health and Disability Ethics Committees throughout New Zealand. A separate application was required for the remaining committee - Auckland Health and Disability Ethics Committee (AHDEC). The AHDEC stipulated that ethical approval also be sought from Ngati Kapo, as the study was intended to be multi-cultural and include those of Maori ethnicity. This was complied with, and all regional ethics committees, MUHEC and Ngati Kapo approved the study after minor requests for changes were resolved in October 1999 (protocol references – MUHEC: 98/204, MWHDEC: 39/98 and AHDEC: 99/04).

1.2.2 Outline of the thesis

The thesis is presented in 11 chapters. The literature on the relationships people have with their pets and service animals is reviewed in Chapter 2 along with guide dog assisted and other forms of mobility. Topics discussed include how the human-animal bond affects quality of life in the health and psychosocial domains, and factors affecting mobility. To help understand how these concepts relate to the research problem discussed earlier in section 1.1.1, Chapter 3 provides background information on guide dogs in society. This includes a summary of domestication in the dog and how this led to the role that guide dogs fulfil, the history of the guide dog movement, and a description of a typical guide dog's life in New Zealand from breeding to retirement, incorporating the selection, training and matching of a dog to its handler.

Chapter 4 describes the focus group discussion. This preliminary study examined the experiences of people, with a range of visual acuity, on the use of guide dogs and other mobility aids, and the development and consequences of the partnership. Although this exploratory research is primarily descriptive and not based on specific hypotheses, testable and non-testable research questions were formulated based on the results of the focus group, issues identified in the literature, and ethnographic fieldwork[5], and a multifaceted, structured questionnaire was created for use in the survey. The areas that

[5] The ethnographic fieldwork, which took place over several years, included consultation with the RNZFB's staff, attendance at several matching meetings and staff workshops at the RNZFB's GDS' headquarters, observing guide dog training and handler-dog training sessions, and auditing of O&M classes at Massey University to gain an understanding of the field.

were explored and research questions are presented in Chapter 5, and a copy of the questionnaire can be found in Appendix A.

The methodology for the survey is explained in Chapter 6. This survey determined the outcome of the matching process for current and previous handlers by assessing and identifying why some matches worked while others did not. The next four chapters present the results of the general (descriptive) findings (Chapter 7), travel (mobility) issues (Chapter 8), factors associated with matching success (Chapter 9), and trends that emerged from the data between handlers and their subsequent dogs (Chapter 10). The thesis concludes in Chapter 11 with a general discussion of the results from the focus group and the survey, and what the implications may be for the guide dog industry. The limitations of the study are addressed in this final chapter and suggestions are made for further research.

2
Review of the Literature

The introductory chapter has identified the importance of guide dogs, as they enhance independent mobility and provide psychosocial benefits to their handlers, and the need to investigate these interactions was established. This chapter presents a review of the literature concerning guide dog assisted mobility and its associations in the fields of health and social sciences. Although guide dogs, along with other service dogs, are classified as working animals they have a dual role since when the dog is not working the relationship might be considered similar to that of a person and a pet. Hence, as little literature directly related to guide dogs could be found, much of the allied study relates to the companion animal (pet) literature from which there is more theory to extrapolate. The review begins with an examination of the pleasures and problems of pet ownership before applying these principles to guide dogs. This is followed by a discussion of mobility aids and factors affecting mobility.

2.1 Pet Ownership

Pets play many different roles in our lives, for example, as a companion, a protector, a surrogate child, a friend and comforter, or a source of exercise depending on individual needs (Salmon & Salmon, 1983). The human-animal bond is believed to have been important to people for the thousands of years since the process of animal domestication begun (Newby, 1997). A working definition by the American Veterinary Medical Association Committee (1998, p. 1675) describes the bond as "... a mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviours that are essential to the health and wellbeing of both. This includes, but is not limited to, emotional, psychological, and physical interactions of people, other animals, and the environment."

2.1.1 Health and psychosocial benefits of pet ownership

There is a wealth of hypothetical and a growing body of scientific literature on the positive physical and mental effects of the human-animal bond, and how this influences health and happiness across all age groups. Explanations for these effects were suggested by M^{c}Nicholas, Collis, and Morley (as cited in Lane et al., 1998) who

proposed that these relationships were (a) non-causal, where some other factor may be associated with both health advantages and the propensity to own a pet, (b) caused by indirect association (e.g. the dog as a facilitator of social interactions) or (c) by direct association whereby the pet is perceived as having a significant relationship with its owner.

Landmark studies have shown that people with coronary heart disease who owned a pet had a prolonged survival time after being discharged from a coronary care unit than non-pet owners (Friedmann, Katcher, Lynch, & Thomas, 1980), and that pet owners had lower blood pressure than those who did not own a pet (Katcher, Friedmann, Beck, & Lynch, 1983). More recently, Friedmann and Thomas (1995) concluded that health benefits were not solely due to pet ownership, as they found that in addition to owning a pet, social support was an independent predictor of one-year survival after acute myocardial infarction (heart attack). Serpell (1990; 1991) has conducted a range of studies that relate to the benefits of pet ownership. Results of his work indicated that owners were less afraid of becoming a victim of crime when living with or walking with a dog, and had fewer minor health problems, better physical health due to exercise with their pets, and enhanced psychological wellbeing.

A New Zealand study on the compatibility of humans and their companion animals (Budge, 1996; Budge, Jones, & Spicer, 1997), in particular cats and dogs, showed that compatibility could be quantified and was associated with beneficial health effects to the pet owner. Specifically, Budge found that compatibility was independently associated with better mental health, even when controlling for the effects of social support. Interestingly, people in this study who were strongly emotionally attached to their pets reported more physical symptoms of ill health, although it is possible that this relationship was affiliated with issues of dependency.

Pets have been shown to benefit children's development through empathy, self-esteem, self-control and autonomy (Levinson, 1978). Studies by Melson (1998) showed that contact with pets developed nurturing behaviour in children who may retain this behaviour throughout adulthood, and that pets fulfil many of the same support functions as adults do by contributing to a sense of basic trust. A New Zealand study that examined factors related to pet ownership in families with primary school age children

(Fifield & Forsyth, 1999), reported that parents acquired pets for their children mainly to teach the child responsibility and to instigate caring behaviour, or because their child asked for one. Other work shows that having a dog in the family helps children to adjust to the serious illness or the death of a parent (Raveis, Mesagno, Karus, & Gorey, 1993), and children with behavioural disorders such as autism are less self-absorbed and more sociable than their peers who do not have a dog (Redefer & Goodman, 1989). Concerning physical health benefits, it appears that school-age children who are exposed to pets during the first year of life have fewer episodes of allergic rhinitis and asthma (Hesselmar, Aberg, Aberg, Eriksson, & Björkstén, 1999).

The effects of dogs as facilitators of social interactions are well documented. Early work in this field by Mugford (as cited in Hart, Zasloff, & Benfatto, 1995) concluded that owning a dog encouraged extroversion in the owner and so enhanced social function in the home and in the community. Messent (1983) observed that the company of dogs prompted dog walkers in a London park to converse with strangers. In addition to promoting conversation with others, dogs can act as conversational partners. Rogers, Hart, and Boltz (1989) found that all the dog walkers in their study talked to their dogs and asked them questions during the walk. This study also found that dog owners reported significantly less dissatisfaction with their social, physical and emotional states than non-owners. A non-causal reason for these effects could be that people who have the propensity to own a dog already have these characteristics. However, the value of having a canine companion to alleviate loneliness is evident in people with reduced social contact, such as the elderly and the disabled (Peretti, 1990).

Animals have been used as a successful adjunct to various forms of therapy for decades (Levinson, 1962) – a procedure now known as 'pet-facilitated therapy' (or animal-assisted therapy). A number of studies have shown that the presence of a therapy animal appears to reduce stress in the recipients. Nagengast, Baun, Megel, and Leibowitz (1997) showed that the presence of dogs in particular appeared to reduce physiological arousal and behavioural distress in children undergoing a physical medical examination. Therapy dog visits were shown to increase social and verbal interactions in the residents of nursing homes (Fick, 1993), and a study by Banks & Banks (2002) revealed that as little as a weekly visit could significantly reduce feelings of loneliness in residents of long-term care facilities, especially for those who had previously owned a pet.

Following in this genre, a recent study on how animals may cause a psychological response was conducted by N. E. Edwards and Beck (2002) who demonstrated that patients with Alzheimer's disease, which commonly causes reduced appetite and weight-loss, gained a significant amount of weight by eating more at meal times while being fascinated watching fish swim in aquariums.

In a White Paper of the 2002 annual educational summit on the human-animal bond, Beck (2002, p.4) puts forward the following explanations for the social, behavioural, emotional and physical effects discussed:

- When people enter a social situation, often times blood pressure and anxiety levels increase. By stimulating conversation, pets help alleviate these symptoms.
- Just under half (48%) of families with pets consider their pet to be a member of the family. As the pet is often considered a child's 'child', this leads to responsible and nurturing behaviours in the child.
- Pets are often the centre of attention, and as they are animals, they usually do things that make us laugh.
- Animals encourage exercise, which results in better health. For example, not only do elderly people walk more often, the experience is more positive with a pet than without.

The human-animal bond is a complex entity. Along with the benefits that companion animals provide, it is important to recognise that attachment relationships also have their downside, and there are contradictions in the literature. A recently published study on Australian pet owners (Parslow & Jorm, 2003) found that ownership was associated with poor health; specifically: higher diastolic blood pressure, higher body mass index and a higher incidence of smoking. These results counter an earlier study in Australia (Anderson, Reid & Jennings, 1992), which concluded that pet owners had lower blood pressure along with lower cholesterol levels. Parslow and Jorm concluded that the link they found between pet ownership and poor health was probably indirectly attributable to risk factors associated with hypertension, and that pets probably do confer health benefits; their point being that science does not know how these benefits are conferred and that longitudinally based research would be necessary before attributing cardiovascular health gains to owning pets. Indeed, the much-cited study of survival

following a myocardial infarction (Friedmann et al., 1980) that was a catalyst for the 'pets are good for you' theory was criticised by Friedmann (1990) herself for methodological issues such as not taking into account factors relating to the pet-owner relationship, rather than just the ownership.

2.1.2 The drawbacks of pet ownership

So, what is the truth about cats and dogs? Aside from the more obvious health hazards such as bites, scratches and zoonoses, owning a pet has been shown to negatively affect human wellbeing in a number of ways. Bergler (1988), in his discussion of the psychology of dog ownership described concerns including financial cost, problems with a dog in the home (lack of space and rental agreement restrictions), time expenditure, hygiene considerations (bathing, grooming, toileting), dependency, restricted freedom, conflict (barking, disgruntled neighbours/family/partners), and worry about welfare in case of the owner's illness or death. Fifield and Forsyth (1999) indicted that in New Zealand the most common disadvantages of owning a pet were arranging for holiday care, time and effort required in general and dealing with the mess that pets create.

Stress and anxiety was found to be increased in children who worried about their pet's wellbeing, and who were distressed following the pet's death (Bryant, 1990). There is also data to support that women who are not attached to their pets are significantly worse off in their relationships with people (Ory & Goldberg, 1983). This study measured subjective life satisfaction and pet ownership in elderly women, and although no differences between pet owners who were very attached to their pets, and those who did not own pets were found, unattached pet owners appeared to be unhappy. Ory and Golberg also found that pet owners were less likely to be in a close relationship with either pets or people, which may have social implications, however they did not differentiate between those who were attached to their pets and those who were not concerning this finding.

Problems in the pet-owner partnership

Relationships between pets and their owners often break down. Preferences for a particular pet may be related to the owner's gender, personality and/or childhood experiences (Miller, Staats, Partlo, & Rada, 1996; Olson & Moulton, 1993), although

the differences between people who own various species and types of pet is not made clear in the literature. Salmon and Salmon (1983), found that 15% of respondents in a survey of 308 households in Australia felt that their pet dog had not met their expectations, but only 6% were sorry to own it; although these people were more likely to have bought the dog for their children or acquired it through a friend or relative. The relationships between foster owners and their temporary charges are also unclear. Researchers who examined the outcome of several projects involving the placement of dogs in prison settings, emergency child care centres, geriatric hospitals and experimental uses of guide dogs with people with non-visual disabilities did not understand why some placements were successful and others not (Salmon & Salmon, 1983).

Kidd, Kidd, and George (1992) examined the reasons why some cats and dogs adopted from humane societies were returned. They reported that these relationships were unsuccessful mainly because of the owners' unrealistic expectations of the roles the pets would play in their children's lives, ignorance of breed-specific behaviours, and the time and money required for maintenance. A recent study by Stafford, Erceg, Kyono, Lloyd, and Phipps (2003) stated that at least 4000 dogs are euthanised in Society for Prevention of Cruelty to Animals shelters each year in New Zealand. This study reported that a minimum of 16% of dogs adopted from shelters were returned for unacceptable behaviours including hyperactivity, roaming and aggression. These dogs were rejected due to human expectations not being met and were considered to have been mismatched. However, what is problematic behaviour for one person may not be for another. Predicting behaviours via temperament testing in rescue shelters is frequently used to decide whether a dog is suitable for rehoming, although it may not be the only factor in determining if the dog is kept or rejected. Ledger and Baxter (1997) examined Royal Society for Prevention of Cruelty to Animals records in the UK and revealed that successive owners of the same dog reported different behavioural problems in that dog, due to the attitude of the owner influencing perceptions.

Owner attitudes are also believed to directly affect behavioural problems in dogs. Examples in the literature include evidence of an association between canine dominance aggression and anthropomorphic involvement of the owner, and canine excitement/displacement activities and anxiety in the owner (O'Farrell, 1997). These

findings are tentatively supported by Podberscek and Serpell (1997) who found that owners of highly aggressive dogs were significantly more likely to be emotionally less stable, tense and undisciplined than owners of dogs that had low aggressive tendencies. However Podberscek and Serpell point out that the cause and effect are far from clear, and as with any study that relies on subjective assessment of animal behaviour, the associations may be due to the owners' perceptions of their pets' behaviours rather than to any real differences in the animals' behaviour. To muddy the waters further, reliability is contingent upon the ability of those rating the behaviour to accurately interpret the behaviours exhibited, as exemplified by Borchelt (as cited in Jagoe & Serpell, 1996) who commented on the dubious quality of the owners' interpretations of fearful behaviour in dogs that were referred to him for behavioural problems.

The end of the pet-owner relationship

Although not a 'problem' *per se*, this section discusses a major drawback concerning pet ownership, that is, when it is time to say goodbye at the end of a successful relationship. This is highlighted by the following excerpt from a poem written by Rudyard Kipling (1909, p. 79) entitled *The Power of the Dog*:

> There is sorrow enough in the natural way
> From men and women to fill our day;
> And when we are certain of sorrow in store,
> Why do we always arrange for more?
> *Brothers and Sisters, I bid you beware*
> *Of giving your heart to a dog to tear.*
>
> Though it is not always the case, I believe,
> That the longer we've kept 'em, the more do we grieve:
> For, when debts are payable, right or wrong,
> A short-time loan is as bad as a long –
> *So why in Heaven (before we are there!)*
> *Should we give our hearts to a dog to tear?*

Kipling's words, written around a century ago, appear to be relevant in the present-day, as there is much in the literature on the subject of human reaction to losing a pet. However, this has received little attention within the field of psychology (Sharkin & Knox, 2003), despite several studies attesting to the need for counselling (Sharkin & Bahrick, 1990; Stallones, 1994). Information gathered from such a counselling program (Weisman, 1991) showed that the strength of the bond between a person and his or her

pet is often stronger than that between that person and a close friend or relative, leading to a very distressing and persistent bereavement. This finding was also reported by Cain (1983) who studied pets in the family and stated that 8% felt closer to the pet than to any other family member.

As for those who mourn humans, feelings of grief for a deceased pet should be acknowledged and respected. The need for a period of adjustment before committing to a relationship with a new pet versus prompt replacement is controversial. A study by Jarolmen (1998) compared grief and bereavement responses of children, adolescents and adults who had lost a pet within a 12-month interval. Her findings indicated that children and adolescents are similarly attached to their pets and that children grieved more than adults did. Jarolmen also concluded that the more recent the loss the more intense the response, but if the loss is anticipated grief is allayed. In her doctoral thesis abstract, Jarolmen (1996) makes the interesting statement that those who have another pet in the home at the time of loss grieve the same for the lost pet as those who do not have another pet in the home, but those who *replace* the pet have a higher grief response. Unfortunately, it was not possible to obtain a copy of the entire thesis to read more about this relationship. Stewart's (1983) findings suggested that deferring replacement was not warranted, even when a highly significant pet died, provided the pet's death was not trivialised and the new pet was introduced in a sensitive manner. The strength of the relationship between a handler and a guide dog, and the end of this partnership will be discussed later in this chapter.

This concludes the review of the literature that is directly related to pet ownership. Although the domains of companion and service animals overlap, the next section is concerned mainly with the use of guide dogs, and begins with a discussion of service dogs in general before examining the literature on mobility aids and factors affecting mobility.

2.2 Guide Dog Usage

2.2.1 Health, psychosocial and mobility

Service dogs

In New Zealand a guide dog can be defined as a service dog that has been trained and certified by the RNZFB's GDS for the purpose of guiding people who are blind or sight

impaired. Guide dogs are taught how to help people travel safely and with greater speed and confidence in a variety of situations. Dogs learn to guide people safely through busy streets and traffic, avoid obstacles, locate destinations such as the post office, the library, or the bus stop, and to behave on public transport and in shops and restaurants. A further explanation of *Service Animals* is provided in the Glossary of Terms.

In addition to their working role, like pets, guide dogs and other trained service dogs, which include hearing dogs for the deaf, mobility assistance dogs, and seizure-alert dogs benefit people with disabilities by providing friendship and companionship (Hart et al., 1995), acting as social facilitators (Eddy, Hart, & Boltz, 1988; Hart, Hart, & Bergin, 1987), and enhancing self-perceived health (Lane et al., 1998). On encountering physically disabled strangers, able-bodied people often exhibited avoidance behaviours such as less eye contact, greater personal distance and briefer social interactions that demonstrated their social discomfort (Eddy et al., 1988). Service dogs appear to act as a 'social lubricant', which breaks through this discomfort and inhibition, and increases spontaneous social interactions (Harland, 1992; Hart et al., 1987; Muldoon, 2000). However, it should be mentioned that as much as the contact may be appreciated, attention such as the public touching a guide dog while it is working in harness and/or without the handler's permission is unwelcome (Harland, 1992; Ulrey, 1994).

Allen and Blascovich (1996) conducted a randomised controlled trial using psychological measures to test for changes associated with receiving a service dog and concluded that the dogs could be highly beneficial and cost effective components of independent living for people with ambulatory disabilities. Valentine, Kiddoo, and LaFleur (1993) interviewed people with non-visual mobility and/or hearing challenges and concluded that although service dogs placed in the home provided considerable emotional and social, as well as practical benefits, not every aspect of the relationship was perfect. Drawbacks included stress due to family members not wanting the dog, reduced access to transport and restaurants, dog hair, and general care and exercise. However, as may be expected, the benefits were seen to outweigh the problems. A study by Hart et al. (1995) examined the actual and anticipated pleasures, and the problems of owning a hearing dog by interviewing owners and prospective owners simultaneously. Results of this study found that prospective owners appeared to have the unrealistic expectation that having the dog would be problem free, and, interestingly, only

prospective owners mentioned achieving independence. Results of another study (Lane et al., 1998) showed that people were more satisfied with their working and non-working relationships with an assistance dog if it had been their own idea to obtain one.

A study by Scherer (1996) found that the abandonment rate of assistance technology devices (excluding dogs) ranged from 8 to 75% with a mean of 29.3%; the most influential factor being a change in needs/priorities of the user. This study also found that the user's input into the selection of the device was a strong factor regarding success. Like these devices, the effectiveness and use of service dogs are influenced by an appropriate match to the handlers (Zapf & Rough, 2002). Jester and Topel (unpublished data as cited in Zapf & Rough, 2002) stated that important factors to assess when matching a service animal are the handler's expectations, awareness of the animal's basic needs, and willingness to provide for the animal financially, physically and psychologically. Hence, Zapf and Rough (2002) designed and trialed a tool for specialists in the field of physical rehabilitation (mainly occupational and physical therapists) to evaluate the needs of their clients, and to assess the match. Areas measured included the client's functional needs, previous experience with animals, activity levels, personality traits, the needs of the dog and follow up. Zapf and Rough concluded that further research is needed to confirm reliability, but endorsed the usefulness of the measure provided the therapist was knowledgeable about service animals.

Mobility aids: guide dogs and long canes

Sighted people tend to associate blindness with characteristics such as dependence, incompetence and childishness, and sight impairment is frequently rated as one of the most feared disabilities (Warnath, 1989). Loss of vision usually produces a reaction in the affected person similar to that caused be any other major loss, that is, from shock and denial to self-acceptance (Ringering & Amaral, 2000). Consequently, depression is a common emotional reaction of persons who confront a vision loss during this adjustment phase (Horowitz & Reinhardt, 2000). A limitation on independent movement is a major restriction faced by people who are blind or sight impaired, and skill in both orientation and mobility (O&M, as defined in Chapter 1, section 1.1.1) is required to regain independent movement (La Grow & Weessies, 1994). Loss of independence and restricted activities are dependent upon age, health and the type and

severity of the disability (Teitelbaum, Davidson, Gravetter, Taub, & Teitelbaum, 1994), and, for many, long cane training and/or the acquisition of a guide dog may improve quality of life.

The quirky quotes from George Orwell's (1987) Animal Farm "four legs good, two legs bad" (p. 22) and "four legs good, two legs better" (p. 89) may be applied to how some people feel about mobility aids, that is, is the dog better than the cane or vice-versa? The value of long cane training, which encompasses route and orientation instruction prior to a person being trained with a guide dog, is well recognised in the guide dog profession (Brooks, 1991; Gosling, 1994; Milligan, 1999; Rimbault & Romero, 1994), especially if taught in conjunction with the particulars of guide dog assisted mobility (Fallon & Emerson, 2003; Guérette & Zabihaylo, 2000).

When used properly, the long cane will provide the traveller with around one metre of warning of obstacles or drop-offs in the path of travel, while transmitting information regarding the texture and quality of the walking surface (La Grow & Weessies, 1994). However, although the lower body is adequately protected, the cane does not afford protection above the waist. La Grow and Craig (2000) investigated the effects of long cane O&M training on 21 specific travel skills by using a measure developed by Blasch, De l'Aune, and La Grow (1995) to evaluate how difficult and how limiting subjects felt travel was before and after training. The study concluded that after training the level of difficulty subjects experienced was significantly reduced on six of the 21 items examined, which were evenly split between orientation and mobility (travel) skills. Training also significantly reduced the degree to which travel was limited on three of these six items, with two of the three involving orientation skills. A corresponding study on the effects of a guide dog on O&M skills could not be found.

Several studies on the mobility habits of people who were blind or sight impaired were carried out in the 1950s and 1960s. The following studies, which were mainly conducted in the USA, were cited in an unpublished PhD thesis (Delafield, 1974) and showed guide dog handlers had better mobility than cane users (Gray & Todd, 1968), a more positive attitude towards blindness, greater social skills, and fewer feelings of inadequacy (Bauman, 1954), higher levels of employment (Corbett & Keld, 1957; Finestone, Lukoff, & Whiteman, 1960; Gowman, 1957), better levels of education,

health, intelligence, emotional stability and were from a higher social class (Finestone et al., 1960). Delafield pointed out that although these differences were very important, these researchers did not attempt to answer where the differences came from. To illustrate, the explanation may have been that the differences represented the result of guide dog usage, or alternatively resulted from the people who applied and/or were selected to be trained with a dog already being well adjusted and highly motivated. Consequently, Delafield set out to test his hypothesis that it was the training with and the subsequent use of a guide dog that helped the handlers adjust to their disability by improving mobility, self-esteem and social interactions. By utilising an *ex post facto*[1] approach, Delafield found that when a long cane user becomes a guide dog handler there are improvements in self-esteem, social function and mobility; the latter improving considerably in terms of stress and safety, but not necessarily efficiency.

An inquiry was carried out by the Government Social Survey for the Ministry of Health on a large sample (N = 1,464) of blind and sight impaired people in England and Wales in 1965 (Gray & Todd, 1968). Along with issues pertaining to reading habits, this study investigated the methods of mobility people used and how successful they were. The main characteristics used in the mobility analysis were age at the time of the investigation, age at onset of blindness, sex, residual vision useful for mobility, other immobilising disabilities and the ability to walk at a brisk pace when guided. The two non-human aids to mobility used in the study were "sticks" (rigid walking stick or collapsible metal cane) and guide dogs. Sticks were used, in decreasing order of most important function: to detect obstacles, as an obvious sign of blindness and to act as a support. Although only 2.3% (n = 34) of the sample used guide dogs, the researchers concluded that this low number was sufficient to show that the guide dog handlers were considerably more mobile and independent than the other groups of blind people. More recently, Clark-Carter, Heyes, and Howarth, (1986) designed and utilised an instrument, the Percentage of Preferred Walking Speed (PPWS), which measured the ratio of a person's actual walking speed to his or her preferred walking speed if sight impairment was not an impediment. Despite a small sample size, the researchers found that handlers

[1] An *ex post facto* approach is one of compromise (i.e. not a 'true experiment'), as the participants cannot be randomly assigned to the independent variable - guide dog training. Thus, although the internal validity may be weakened, the external validity is increased because it is more representative of a real life situation (Delafield, 1974).

(n = 3) walked significantly faster than long cane users (n = 3), and only handlers reached their optimal efficiency.

As part of a study on the ophthalmic and visual profile of guide dog handlers and other sight impaired adults in Scotland, the health and social circumstances of handlers were compared with those of patients at a low vision clinic, and clients of rehabilitation social services (Refson et al., 1998, 1999). Eighty-nine percent of those who used dogs perceived their quality of life to be substantially improved consequently. These changes did not appear to be significantly related to the duration of sight impairment. The handlers were found to be more mobile than either of the other groups, but were also younger, fitter and healthier; findings that are consistent with a previous study on the visual, health and social status of guide dog handlers in Northern Ireland (Jackson et al., 1994). In addition, the handlers in Refson et al.'s (1998, 1999) studies were more independent, confident, better adjusted to their sight impairment, had increased social contacts (with other handlers and the public) and enhanced mental and physical wellbeing.

Refson, Jackson, Plant, et al. (2000) compared the visual status and mobility habits of guide dog handlers who had retinitis pigmentosa and long cane users with this visual condition and found that 93% of handlers travelled independently daily compared to 65% of long cane users. This result suggests that in terms of frequency, handlers were more mobile than long cane users. However, the use of the dog cannot be considered causative, nor did this study address how many of the journeys were for the dogs' needs. Most of the long cane users in this study rejected the idea of using a dog, mainly due to feeling that their mobility was not sufficiently impaired. Other reasons for not choosing to use a guide dog, in decreasing rate of response, were having an available sighted guide, unsuitable accommodation, fear or dislike of dogs, inability to take the dog overseas, family objections and religious grounds. It is of interest to note that at the time of writing this thesis, around 2% of the 12,000 people registered as blind or sight impaired in New Zealand used a guide dog. This proportion is comparative to the UK and Australia, and is slightly higher than the USA (I. Cox, General Manager, RNZFB's GDS, personal communication, October 2001).

The only research on guide dog use in New Zealand that could be found was an unpublished MA thesis (Harland, 1992). In this informative qualitative study, Harland conducted semi-structured interviews with eight guide dog handlers about their experiences with guide dogs and how these experiences compared to life before acquisition. The study aimed to increase the knowledge of dog usage by describing the dogs' effects on the handlers' lives, to empower the participants by enabling them to talk about their experiences, and as a form of catharsis. Harland's results indicated that training with a guide dog was stressful, and that the handlers appreciated being given the choice of training at home (domiciliary) or not, that is, in a residential setting; a finding supported by Lambert (1990). Most handlers had problems adjusting to their dog's work and social behaviour early in the partnership, which appeared to be solved in time. Handlers felt that the sighted population treated them poorly in general, but this was alleviated by the dog's presence. Other benefits of dog use included the handlers feeling more assertive, feeling less stigmatised in society by not having to use a cane, and experiencing greater independence. Although the literature suggests that an increase in mobility is the primary reason for acquiring a dog (Clark-Carter et al., 1986; Deshen & Deshen, 1989; Fuller, 1976), Harland suggested that the quality of mobility over the quantity mattered most, and that previous research focussed on mobility performance only after the dog was introduced. Overall, the participants in Harland's (1992) study were happy with the RNZFB's GDS's administration of the day; although, as Harland mentions, the sample may have been biased as the RNZFB's GDS had some input in the selection of participants and some participants were on personal terms with Harland herself who was a RNZFB's GDS volunteer.

In addition to the literature discussed, there are many anecdotal, autobiographical accounts of the positive differences guide dogs have made in the quality of lives of their handlers in the psychosocial, health and mobility domains (Ireson, 1991; Purves & Godwin, 1981), and some that mention the disadvantages as well as the advantages (Lambert, 1990; Stead, 1997; Warnath & Seyfarth, 1982). These reports are linked, but may not be generalised to the experiences of other handlers, and the association that supplied the dog endorses many of these reports. However, bias aside, it can be difficult to comprehend guide dog and handler relationships without personal experience of being sight impaired and/or using a guide dog (Bergler, 1993), and therefore these narratives are informative and useful to researchers in this area. This principle is

exemplified by R. T. Edwards (2002, p.171), a senior research fellow in health economics who wrote about her experiences as a new guide dog handler:

> It costs a staggering £35 000 [pounds sterling] to breed, train and maintain a guide dog over its 9 year working life, all raised through charitable donations. As a health economist, I have conducted a "back of a dog biscuit packet" cost per QALY[2] calculation of becoming a guide dog owner. Based on an *n* of 1 (me) even without any impact of life expectancy through accident avoidance, I stand to gain an annual improvement in quality of life in the region of 0.61 on the EQ-5D instrument. This translates into a gain of 5.49 QALYs over Vickki's [the dog] 9 year working life, or an undiscounted cost per QALY £6,375 [pounds sterling], relatively good value for money. Within our largely medical model of health, it is of note that for many blind people, potentially the greatest health related improvement in quality of life has four legs and a wagging tail.

Strength of the relationship with a guide dog

Katcher (1981) reported that as many as 80% of pet owners not only considered their pets to be members of the family, but also perceived their pets as 'human' rather than 'animal', and Hart (1995) emphasised that the role of pets often assumes greater importance in smaller families. Perhaps even more than pets, guide dogs are bestowed a high degree of status. A number of guide dogs have been honoured for their assistance towards their handlers' achievements including Guide Dog Diego, who received a Friend of Learning certificate, and Guide Dog Jilli, who was given a medal, when their handlers graduated from University ("Every dog has its graduation day", 1997). Dogs may also be delegated personas, as in the case of Guide Dog Norton, who's current job is to guide The Lancet's (a prestigious medical journal) Press Officer from home in south London to work, as Norton 'wrote' in his own column in The Lancet (Norton, 2000).

The guide dog's impact on the self-definition of the handler was taken to yet another level by Bizub (1998). Her phenomenological study described the transformative nature of the relationship, whereby although the dog is a unique character is its own right, it is embodied kin, and like its handler, is shaped by and shapes the relationship. Sanders (2000) supported this theory by describing the relationship as more than one of function in conjunction with enhanced social identity. He suggested that the dog was

[2] The Quality Adjusted Life Year (QALY) is a calculation that combines the quantity and quality of life.

dog's retirement home. The entire cohort who experienced other adverse life events at the time the partnership ended (n = 16) recorded high levels of distress irrespective of why the partnership ended or what became of the dog. Nicholson (1993) and Nicholson et al. (1995) found that extreme grief was more common in what was termed the "vulnerable group". This group consisted of handlers who met one or more of the following criteria: whose dogs had held a 'special' significance (e.g. a link to a beloved, deceased person), whose partnerships had ended abruptly, who had a poor relationship with the guide dog school, and who had experienced the end of their first partnership.

The following passage is paraphrased from Harland (1992, p. 83), whose work also explored the handlers' feelings at the time the partnership ended and backs up many of Nicholson's (1993) and Nicholson's et al.'s (1995) findings:

> My dog retired. She went on the Sunday morning to my friend's place, and Sunday afternoon I went in for training. I got my new dog the next day, so I was very lucky to never have been without a dog, and was terribly pleased to have one. You know, it's really terrible when you have to give up your dog because in the old days we weren't allowed to keep them as pets. We had to give them up. At the time, another handler had to also get rid of his other pets, as he wasn't allowed to have another dog in the house. So me and the other handler were sitting there, and the instructors were trying to talk to us, and we were both bawling our eyes out during the whole of the first lecture. It was really strange – I don't know – but it was good to get another dog virtually straight away.

The interviews in Nicholson's (1993) and Nicholson et al.'s (1995) study were conducted by regional liaison officers who were staff members of the Guide Dogs for the Blind Association (GDBA), which may have affected responses. However, this study confirmed that in terms of emotions experienced, reactions such as anger and grief were similar to the responses following the death of a pet, the loss of a human companion (Fogle, 1981; Stewart, 1983) and loss of sight described earlier in this chapter. Feelings of guilt and self-reproach were also apparent as handlers often blamed themselves when a dog died or a partnership failed. The latter finding was unexpected as Nicholson et al. (1995) had hypothesised that the end of a partnership would be a relief for those who had experienced work-related problems, and that such a mismatch would not have resulted in the handler and dog bonding. However the qualitative evidence showed that the handlers struggled to overcome the problems and were reluctant to accept that the relationship was over.

Limitations of mobility aids

Despite the many advantages of long cane mobility, disadvantages associated with its use included a high requirement of concentration, feelings of stress and insecurity, and loss of orientation (Steffens & Bergler, 1998). According to Deshen and Deshen (1989), long cane assisted travel was slow and a large amount of space was necessary for utilisation, which, in crowded situations, presented an obstruction to sighted pedestrians who often stepped on and damaged the canes. In contrast, a dog avoided obstacles, recognised hazards earlier and found a way to move forward safely in congested places, that is, "not a gadget with limited scope, but a partner who enables a blind person to find quicker, safer ways of solving problems" (Steffens & Bergler, 1998, p. 153).

Handlers may choose to work with a guide dog rather than other mobility aids, however, it should be remembered that the dog is also a tool. Ulrey (1994) mentioned that although the dog has been taught many different commands that the handler uses to reach destinations, a dog is an animal with the mental ability likened to that of a young child. As such, if the dog is not constantly reinforced through repeated use of these commands some unused commands may be forgotten (through a process known as 'extinction') or performed poorly – this being a reflection of a dog's nature, not of the training. In an autobiographical account of guide dog training (Warnath & Seyfarth, 1982), Warnath recommended the dog as a provider of greater freedom than the cane, a confidence builder and a bridge to social contact with sighted people, but not a guarantor of tranquil, unimpeded travel. The dog's response to puzzling or frightening situations may itself generate mobility problems. For example, the dog twisting in its harness to avoid a confrontation with a roaming dog, or pulling the handler off the pavement to avoid a collision with a moving object. Other limits of guide dog use include the fact that as a living creature, a dog may have 'off days', illness and a relatively short life (Rimbault & Romero, 1994).

Half the handlers in Refson et al.'s (1999) study had concerns about guide dog usage before they applied for a dog. The three main apprehensions were (a) being responsible and having to care for a dog, (b) feeling a "fraud" because of 'too much' sight, and (c) worry about the negative attitudes from friends, family and work colleagues. Almost all these concerns were alleviated early in the relationship. Although the literature shows that guide dog usage improves the overall quality of life of the handlers through the

many advantages mentioned, as with other service dogs, having a guide dog also has its drawbacks. Disadvantages that were identified in Refson et al.'s (1999) study included arranging care for the dog when going on holiday, walking the dog in inclement weather, dog hygiene, and general care and responsibility. With the exception of roaming, fighting with other dogs and unwanted litters of puppies, the disadvantages were similar to those identified earlier in this review regarding pet ownership.

Lambert's (1990) commentary on becoming a guide dog handler suggested that because dogs, unlike the long cane or electronic mobility aids, are highly interactive and sociable, the psychological issues that relate to cane travel, such as anxiety, embarrassment and dependence-independence conflict, also relate to entrusting safety to a "mere canine". He proposed that these psychosocial processes are important in determining the success or failure of the handler-dog team, and counsellors and educators in the field should pay more attention to them.

The next section examines some of the visual, psychological and physical factors that affect mobility. An explanation of relevant eye terminology can be found in the Glossary of Terms, and in the RNZFB's Practical Aid to Understanding Vision Impairment at the front of this thesis.

2.2.2 Factors affecting mobility

There is evidence in the literature to support the concept that the degree of vision is correlated with O&M performance (Clark-Carter et al., 1986; Geruschat & Smith, 1997; Marron & Bailey, 1982), although the relationship is not well understood. Traditionally, walking speed, time taken to get from point A to point B and a tally of errors were used to objectively measure the complex task of O&M performance, with varying degrees of success. However, it was recognised that factors such as the age of onset of sight impairment, posture, balance, body image, auditory-tactile abilities, personality and intelligence were also important (Marron & Bailey, 1982).

Training a person who has been blind since birth (congenital onset of vision loss) is different from training someone who lost his or her vision later in life (adventitiously or acquired). Congenitally blind people have no visual memory and therefore have a different perception of the world than those with acquired vision loss or sight (Ireson,

1991), which may mean that it is more difficult to follow a route as it cannot be visualised in terms of distance, perspective and size. Ireson demonstrated this concept of spatial awareness by exemplifying a congenitally blind child who asked how many walls there were in a large room if a small room had four, and by explaining how a guide dog instructor[3] enabled a person, with limited experience of the world outside her home environment, to gain an appreciation of the size of a bus by arranging for her to physically explore the bus by feeling the tyres, going upstairs etc.

The amount of useful residual vision is a major factor considered by the guide dog instructor when assessing the suitability of people who apply to use guide dogs (applicants). Although the degree of visual acuity does not always correlate with functional ability, most people who are legally defined as blind are believed to have too much residual vision to be able to work effectively with a guide dog (Whitstock et al., 1997). A person with a high level of functional vision may not benefit from guide dog mobility as he or she is likely to anticipate stops and turns, and steer the dog around obstacles thus positively reinforcing the dog to cease making guiding decisions when the need is there, for example, during low light conditions. However Whitstock et al. (1997) mention that this may not be the case for an applicant with a degenerative eye condition, as he or she may learn to use the dog effectively under special training techniques (i.e. with the use of visual occluders). Each guide dog school has established criteria for assessing applicants. The RNZFB's GDS' policy on this and other factors affecting the matching process is discussed in the next chapter.

The effect of psychological factors on mobility outcomes is also unclear. Beggs (1991) examined psychological variables in conjunction with the PPWS instrument that was developed by Clark-Carter et al. (1986), and proposed that the speed at which a person who is blind or sight impaired walks decreases as a response to stress and lack of self-confidence associated with travel. Beggs' analysis showed these psychological variables accounted for the majority of the variance in the PPWS, while the variables associated with vision, as measured by acuity and field loss were unrelated. Conversely, Heyes, Haymes, Guest, and Johnston (1996) found that vision, also measured by acuity and

[3] Guide dog instructors assess people who apply to use a guide dog, and match and train them with a qualified dog. A full explanation of the role of the instructor is provided in the Glossary of Terms.

field loss, was the primary determinate of functional mobility, and that to their surprise, there was no correlation of psychological variables such as personality and intelligence on mobility performance as measured by the PPWS. However, Heyes et al. conceded that their findings may be explained by their choice of methodology where the subjects ($N = 18$) all had one type of ocular pathology (i.e. retinitis pigmentosa), were considered to be well-adjusted to their sight impairment, of above average intelligence and had similar personalities. It should also be noted that although the two sets of authors examined psychological variables, Beggs's variables were related to experience and confidence in the travel situation and Heyes et al.'s referred to correlates of wellbeing.

Diabetic retinopathy, which causes fluctuating vision and decreased night vision, is the leading cause of new blindness in the Western world today (Chous, 2003). Research indicates that regular aerobic exercise such as sustained walking has many health benefits for a person with diabetes such as decreased risk factors for cardiovascular disease and lowering insulin requirements (Kevorkian, 1986; Kozel, 1995). Indeed, recreational activities that make moderate demands on the cardiovascular system are likely to benefit the health of all people with a sight impairment (Hanna, 1986). However, along with health benefits, increased walking elevates the risk of irritation to the feet and other complications for diabetics. Hence, special considerations are required when training a person with this condition to use a guide dog or a long cane (Kozel, 1995; Milligan, 1998).

Non-visual considerations that may encumber work with a dog include impaired circulation (may lead to mobility problems in cold weather), peripheral neuropathy (may mask pain), Charcot's joint (degeneration of the foot leading to an unusual gait), and foot drop (may catch foot on a crack in the pavement that a dog would probably ignore). Conditions that could facilitate the use of a dog include diabetic hand syndrome[4], carpal tunnel syndrome (intensified by repetitious movements required for long cane use), cranial neuropathy (may lead to hearing loss), and kidney transplant as cane usage does not offer protection from the waist up (Milligan, 1998; Ponchillia, 1993).

[4] Diabetic hand syndrome is a condition characterised by limited joint mobility and thickened skin, which causes difficulty when performing cane techniques. A guide dog can be useful to retrieve dropped items (Milligan, 1998).

An analysis of ophthalmic and visual function of guide dog handlers in the UK (Refson, Jackson, Dusoir, & Archer, 2000) identified demographic trends among the applicants. All handlers had similar ophthalmic profiles with retinitis pigmentosa being identified as the single most common cause of sight loss. Findings also showed that handlers generally became sight impaired early in life, mainly through congenital or early-onset degenerative eye conditions. This contrasted with the majority of people who were newly registered as blind or partially sighted, who had conditions such as age related macular degeneration (ARMD), which is the most common cause of vision loss after age 60 (Cassin & Solomon, 1997). The study concluded that there might be potential handlers in the community who have not applied for a dog, believing that they are not eligible due to having residual vision.

Refson, Jackson, Dusoir, et al. (2000) believe this is an important finding, as, with an ageing population, the pool of eligible guide dog applicants (i.e. those without ARMD) will form a lesser proportion of the sight impaired population, thus requiring service providers to adjust policies in line with changing mobility needs. While this may be so, the RNZFB's GDS have successfully matched either a first or a replacement dog to several elderly people with ARMD; a trend[5] that is becoming apparent in several training schools around the world (I. Cox, General Manager, RNZFB's GDS, personal communication, August 2000). This trend is backed up by Long, Boyette, and Griffin-Shirley (1996) who believed that although older sight impaired persons may have physical limitations that preclude the use of guide dogs, an applicant should not be excluded on the basis of age but looked at on his or her own merit as, for example, he or she may be matched with a dog with a suitably slow walking speed.

In addition to sighted guides, guide dogs, a variety of canes (long, short, folding and telescopic) and electronic travel aids (C-5 Laser Cane, Mowatt Sensor, Nottingham Obstacle Detector, Sonic Pathfinder, GuideCane etc.), more options for mobility aids are becoming available. Dogs and humans are not the only species that act as guides. The Guide Horse Foundation was set up in May 2000 in the US, with the aim of

[5] Historically, unlike people with retinitis pigmentosa, which results in a loss of peripheral vision, those with ARMD have not been considered eligible to apply for a guide dog due to the belief that as peripheral vision remains intact this would preclude the handler from effectively working with a dog.

training and supplying miniature guide horses free of charge, particularly to rural dwellers (Neill & Ballard, 2001).

Physical costs of using guide dogs and long canes

A qualitative study that investigated the musculoskeletal consequences of using long canes and guide dogs (Gitlin, Mount, Lucas, Weirich, & Gramberg, 1997) found that users of both mobility aids experienced a variety of negative physical side effects. These included sore arms and stiffness from dogs that pulled excessively, wrist and shoulder problems related to cane use, and prodding to the torso when the cane lodged into cracks in the pavement. As Gitin et al.'s stated, the need to concentrate on auditory and tactile environmental cues to facilitate safe travel, for example, echolocation[6] required that travellers ignored any stimuli that interfered with mobility, and therefore physical discomfort may have been masked – leading in turn to musculoskeletal problems. However, the problems were considered acceptable by the travellers due to the biophysical advantages (defined as the ability to walk faster, walk as a form of aerobic exercise, and gain strength and endurance) and psychosocial benefits derived from being independently mobile and increased social engagements. Overall, more benefits were reported for the dog than the cane in this study. The cane was considered excellent over familiar routes of travel, and the dog more advantageous in heavy traffic, conditions that muffle critical auditory cues such proximity to a construction site, and when guiding a traveller through a normally familiar topography that had become unrecognisable by snow.

Mobility aids in society: stigma

The use of a long cane (Wier, 1988) or any travel aid (Gitlin et al., 1997) identifies the traveller as being blind or sight impaired. This usage and/or dependence on help from sighted people is often considered stigmatising as one cannot 'pass' as a person who is not physically disabled (Higgins, 1999; Wainapel, 1989), although this effect becomes less pronounced in longer term cane travellers as their skills improve and attitudes change. Another aspect of social stigma and symbolisation applied to the long cane was

[6] Echolocation, as defined by Lydon and McGraw (as cited in Gitlin et al., 1997) is an auditory travel skill where the traveller can establish distance from an object by awareness of an echo bouncing off its surface.

reported by Deshen and Deshen (1989) who stated that travellers tried to avoid the "embarrassing" sound the cane emitted during use.

The acquisition of a dog, and subsequent ability to "come out" as a blind person, came as a relief to R. T. Edwards (2002, p. 171) for whom carrying a white cane did not effectively signal her limited vision to other people. However, not all potential handlers were as keen to be so identified, as illustrated by the following quote:

> ...I was a man who had reluctantly become ready to display blindness prominently at the end of a leash; and at 24 [years of age] my reluctance demanded a psychological compromise with my readiness (Lambert, 1990, p. 152).

Mobility aids in society: cultural issues

In contrast to traditional middle-eastern attitudes, guide dogs are widely accepted in most western societies. In New Zealand, legislation (The Dog Control and Hydatids Act, 1982; part VII, section 83) was introduced giving all guide dogs including breeding stock, puppies and dogs in training the same rights as people to enter public places such as restaurants, theatres and shops, and to use public transport. With the exception of access to a Marae (a Maori meeting house) infringement of this law, which was updated in 1996, carries a penalty of up to one-year imprisonment. However, this is not the case for many countries, and problems due to cultural differences and/or religious reasons can occur. To illustrate, a priest in a Greek Orthodox church in Canada, a country where guide dog access is protected in law, was fined $1,000 Canadian dollars for banning a guide dog from a baptism; the fine being imposed even though the dog's presence went against the Orthodox teaching of not permitting a non-human animal to enter a place of worship (Yu, 1999).

Deshen and Deshen (1989) examined the use of the guide dog and the long cane in Israel, which at the time had only 120 working guide dogs. They proposed that most blind Israelis did not choose to use a dog because of the "socio-cultural moulding of mobility practice". This equated to the elite upper strata of blind society using dogs while the rest generally viewed dogs as "unclean beasts". A similar attitude exists in Japan. A study was conducted by the Nippon Foundation for the Blind to examine why the demand for guide dogs had not increased as expected (Nippon Foundation for the

Blind Research Overview, 1998). Results showed that in addition to disadvantages of guide dog use such as the dog not being welcome in restaurants, food and health costs, general care requirements and grief at the end of partnerships, 20 to 30% of those interviewed (N = 510) felt self-conscious about owning a dog as it made them feel conspicuous within society and different from their neighbours. In a recent comparison of young, sighted people's attitudes towards service dogs in Japan and the UK, the British were more likely to be positive towards the idea of dog usage, and the Japanese were less well informed about the dogs and disabled people in general (Miura, Bradshaw, & Tanida. 2002).

This review of the literature has focussed on people's relationships with companion and service animals, and issues concerning mobility. As the intention of this research was to identify what factors are important in creating successful handler and guide dog partnerships, the next chapter aids in the comprehension of the 'big picture' by examining the role of the dog from domestication of the species through the production of a guide dog from birth to retirement, and identifies a gap in the literature.

3
Background
Guide Dogs in Society

This chapter provides general background information regarding guide dogs in society, which complements the review of the literature presented in Chapter 2. The topics that will be discussed include: why dogs are suitable as guides; the ancestry, domestication and development of breeds; a short history of the guide dog movement and New Zealand's guide dog school; and the life-stages[1] of a typical New Zealand guide dog, including the selection, training and matching of the dog to its handler. The chapter concludes with an appraisal of an identified gap in the literature concerning the making and the outcome of the handler-guide dog partnership.

3.1 Dogs as Guides

Dogs guide because they are obedient, responsive, have an instinct of self-preservation, an inherent desire to please and the ability to communicate information. The use of the harness provides a physical link and a means of contact between the handler and the dog through which each can provide direction to the other. Unlike dogs that are trained to sniff out drugs or other contraband, guide dog training suppresses many of the dogs' natural behaviours. For example, curbing the desire to sniff or seek another dog or person's company while working in harness. Therefore, a dog's willingness to please its handler should not be underestimated (R. Bennett, Guide Dog Trainer, RNZFB's GDS, personal communication, December 1999).

According to Naderi, Miklósi, Dóka, & Csányi (2001), successful mobility depends on the willingness of both species to cooperate and synchronise their actions. Neither handler nor dog has the full information required for the task in hand, that is, the human has restricted visual information and the canine is unaware of the planned actions of the

[1] The methods the RNZFB's GDS employ to select, breed, raise and train their dogs, match the dog to its handler, train the handler-dog team and ongoing follow up is continuously evolving, and was current at the time of publishing this thesis. Most of the information in this chapter has been sourced from personal communication with the RNZFB's GDS staff, in particular I. Cox, General Manager and S. Bruce, Education & Training Manager, 2000-2003, and RNZFB's information archives.

human. Thereby, the handler gives a command, the dog leads (where appropriate) and the handler follows. However, a dog cannot be compelled to adopt the role of a guide dog; if it is unwilling, it will not guide. Safe and efficient travel is dependent on the ability of the handler and the dog to concentrate on their work together through mutual trust (M. Prisk, Guide Dog Instructor, RNZFB's GDS, personal communication, December 1999).

It is accepted that the dog is an intelligent and social creature with an instinct to live in a pack, and, like humans, has a need for companionship in a hierarchical culture. Zee (1983) states that this is because of the similarities in the development of the limbic and emotional structures of the human and the canine brain. Hence, the dog has the capacity to exhibit various responses to attachment including dependability and loyalty as illustrated by obeying its handler's commands and guiding the handler through complex, noisy environments (Voith, as cited in Zee, 1983).

The next section will examine the evolution of the dog as a working animal and a pet, and how this led to the qualities necessary for the production of a guide dog.

3.2 Ancestry and Domestication of the Dog

3.2.1 The ancestral dog

Within the order *Carnivora*, around 38 species from 14 genera belong to the family *Canidae*, of which the domestic dog (*Canis familiaris*) is a member of the genus *Canis*. Also classified are the wolf, coyote, jackal, and less closely related are the fox and various hunting dogs. This is a cosmopolitan family in terms of demographics, being found wild on all continents from tundra to desert, barring Antarctica. (Thorne, 1992).

Historically, naturalists such as Darwin and Lorenz considered the dog to be descended from more than one species of wild canid including the gray or timber wolf (*Canis lupus*), golden jackal (*Canis aureus*) and the coyote (*Canis latrans*), all of which can interbreed. While Linnaeus believed the dog evolved from a separate species altogether due to differences in the shape of the tail. Research now indicates that all dogs, including the enigmatic Australian dingo, which is a feral dog of ancient origin, have one canine forebear - the wolf (Morell, 1997; Tacon & Pardoe, 2002; Vila et al., 1997). Despite the research to support this hypothesis, the origins of the domestic dog are still

uncertain. This is largely due to the time elapsed since domestication, which has been argued by some (Fox, 1978; Zeuner, 1963) to be around 12,000 to 15,000 years before present (BP), as indicated by the fossil record. In dramatic contrast, a study that compared mitrochondrial DNA from a variety of canids concluded that dogs split genetically from wolves between 100,000 and 135,000 years ago (Vila et al., 1997).

Researchers have been unable to determine whether dogs sprang from wolves once or several times. Olsen (1985) contended that no single point of origin existed and that dogs evolved from different wolf populations in different places at different times, which may account for the enormous variation in contemporary dog breeds. Although some wolves and wolf-hybrids still exist, Vila et al. (1997) believe that the wild-type progenitor remains a mystery, as the ancestral wolf population is now extinct. However, more recent research by Savolainen, Zhang, Luo, Lundeberg and Leitner (2002) indicated that the origin of domestic dogs is clearer. These researchers examined mitrochondrial DNA from all major dog populations worldwide, and found that while several maternal origins may exist; there was a common origin from a single gene pool for all dogs. The pattern of genetic and phylogeographic variation suggests that dogs originated in East Asia - 15,000 years ago.

Differences in the length of time regarding humans' (*Homo sapiens*) association with dogs begs the question of why archaeological discoveries fail to show morphological differences between the wolf and the dog until the late Palaeolithic period, 14,000 years BP. At this time evidence supporting the dogs' sociological significance to humans surfaced, as substantiated by deliberate coburial, when a mandible of a domestic dog was found in a grave in Germany. Later, during the Mesolithic period, 10,000 to 12,000 years BP, remains were discovered in Northern Israel when a grave containing a human skeleton with its hand resting on the complete skeleton of a puppy was located (Davis & Valla, 1978). Wayne (as cited in Cohn, 1997) postulated that phenotypic divergence did not begin until after humanity converted from hunter-gatherers to agricultural based societies, thus imposing new selective regimes on dogs. This reasoning is supported by Tacon and Pardoe (2002) who noted that early dogs might not have looked very different from wild wolves, as canid specimens in two distinct sizes have been found in fossil beds in England from the middle Pleistocene period (i.e. 190,000 to 130,000 years

BP). The difference in size represents two different species, with the smaller most closely resembling a small wolf.

3.2.2 Domestication of the dog

Domestication results from the intermingling of cultural and biological processes (Clutton-Brock, 1995), as supported by the fossil and genetic evidence. The process is usually achieved by modifying growth and other traits through the provision of food, protection from enemies and selective breeding. It appears that there were three stages involved in the domestication[2] of the dog: taming, selection and breeding. The course having begun, either through self-imposed or enforced introduction, may have led to the wolf finding its niche by making itself at home with humans (cultural), and selective breeding by humans (biological) has eventually produced the modern dog in its many forms (Tacon & Pardoe, 2002). Tamed wolves are not domestic dogs. The process to full domestication would have been gradual, however once domesticated the morphological changes such as smaller stature and shorter muzzles, appear to have been seen after a relatively few generations of captive breeding (Clutton-Brock, 1995).

At the end of the last glaciation, 10,000 years ago, the big environmental changes provided strong selection for generalists and opportunists, such as the dog and most other domestic species (Thorne, 1992). The dog is believed to be the first animal to have been domesticated by humans. Paxton (as cited in Tacon & Pardoe, 2002) suggests that as humans and wolves are highly social animals with complex communication signals, the two species may have tacitly understood each other's body language as much as tens of thousands of years prior to other animals being domesticated. Aside from usefulness, early dogs may have had several traits that predisposed them to full domestication, including non-adaptation for instant flight, ability to breed freely and a social hierarchical structure (Budinsky, 1992). Acquiescing to a leader in the social system makes the dog easier to handle.

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[2] The Times English Dictionary (Treffry et al., 2000) defines 'domestic' as "1: (of an animal) bred or kept by man as a pet or for purposes such as the supply of food; 2: of or involving the home or family" (p. 460), and 'dog' as "a domesticated canine mammal occurring in many breeds that show a great variety of size and form (p. 457).

Like dogs, humans are omnivorous and are renowned as being hunters of a predatory nature. Therefore, the links between humans and dogs may be due to a similarity in kind (Thorne, 1992). The most common hypothesis is that humans and dogs began their association as hunting partners that predated on the same food sources (Fox, 1978). This association may have begun before or around the emergence of *Homo sapiens* about 40,000 years BP. Domestication is thought to have begun with orphaned or captured wolf cubs being brought back into the village, the tamest of which were raised as pets (Cohn, 1997), although it is not known when the first wolf puppy was tamed.

However, not all scientists share this anthropocentric view of domestication. Bradshaw (as cited in Tacon & Pardoe, 2002) suggests that by scavenging around camp edges the wolf may have chosen humans rather than the other way around; an example of natural selection. The theory of natural selection, as proposed by Charles Darwin in 1859 (Darwin, 1910), hypothesises that evolution by the survival of the fittest, that is, those best adapted to the environment, will pass on that fitness to the next generation. This and the fact that humans have tried unsuccessfully to domesticate some species (e.g. zebra), along with manipulation/protection relationships in nature such as ants that spread the seed of honeydew secreting acacia trees, supports the argument that domestication may not have been imposed by man (Budinsky, 1992). Newby (1997) suggests that humans and dogs have evolved together, thereby adding the biological dimension of dogs shaping humanity as much as humans have shaped them. Diamond (1991) claimed that without domesticating other animals, humans might still be living as our hunter-gatherer ancestors did; due to domestic animals being the energy source that enabled technology from pulling ploughs to deciding wars. Despite modern-day city living, where almost none of these original functions remain, the dog is still here, presumably brought by humans due to the advantages of the human-animal bond described in the previous chapter.

The role of the first dogs can only be speculated upon. They may have acted as scavengers that would keep living areas cleaner, provided a source of warmth, acted as guards or sentinels of danger, and assisted during hunting. Later, with the advent of agriculture and livestock husbandry, early dogs may have herded livestock, and driven ungulates away from crops (Thorne, 1992). Dogs may also have fulfilled a human need for companionship (Newby, 1997). It is clear that dogs have been and continue to be

useful to humans, but what does the dog get out of the relationship? Aside from the fact that the species is hugely successful genetically speaking and food, shelter and warmth are provided, Fogle (1995) implies that due to humans and dogs being able to communicate in ways that both species understand, humans make acceptable companions for dogs.

Neoteny

No other species has the range of morphological and behavioural changes seen in the dog. Around 400 breeds of dog exist today, decreasing in size from the Mastiff to the Chihuahua. Although canine development is very plastic, puppies of every breed look exceptionally alike, with large foreheads and paws. These "cute" traits are also characteristic of wolf puppies. Unlike the wolf, domestic dogs retain morphological and juvenile behavioural traits into adulthood. This is called neoteny. Morphological neotenic traits (or paedomorphosis) that are common in dogs but do not appear in adult wolves include rounded and/or floppy ears, and a large head, paws and forehead in relation to the rest of the body (Cohn, 1997). An explanation for this may be that these supernormal sign stimuli elicit a care-giving response ("the 'aw' factor") in people cross culturally (P. B. McConnell, Adjunct Assistant Professor of Zoology, University of Wisconsin - Madison, personal communication, November 1996).

Behavioural neoteny may be linked to tractability or the ability to be trained by humans (Grandin & Deesing, 1998). Coppinger and Schneider (1995) are of the opinion that different dog breeds express various degrees of behavioural neoteny, also seen in the wolf cub, such as whining, begging, greeting by way of licking and submissiveness. These differences are suggested by Moray (as cited by Cohen, 1997) to be due to natural rather than artificial selection, as a wolf exhibiting dominant behaviours to humans would not likely get the opportunity to contribute to the gene pool of the domestic dog. Another notable behaviour modification is that while adult wolves seldom bark this is a frequent behaviour in most breeds of dogs, presumably for soliciting attention (Scott & Fuller, 1965).

Aside from neoteny, dogs also differ behaviourally from the wolf in that many bitches come into oestrous every six or seven months, regardless of time of year, while the female wolf cycles once annually (Grandin & Deesing, 1998). In addition to smaller

stature and shorter muzzles, non-neotenic morphological dissimilarities include sickle-shaped tails and piebald colour patterns. Behavioural and physical changes may be linked genetically (heritable). Experiments conducted in Russia in the 1960s and 1970s by Belyaev successfully bred silver foxes for tameness. Within 20 generations, like domestic dogs, the foxes came into heat and bore young twice yearly, had hooked tails, drooping ears and the occasional piebald coat (Budinsky, 1992). These experiments would appear to contradict Wayne's (as cited in Cohn, 1997) proposal that phenotypic divergence did not happen that quickly.

Wayne's work (as cited in Cohn, 1997, and as cited in Morell, 1997) implies that once dogs were domesticated humans interbred them mostly with other dogs rather than with wild wolves, suggesting that the taming of a wild animal is a rare event requiring particular skill. However, some intermittent breeding probably occurred between dogs and wolves after domestication and this backcrossing, by alleviating genetic drift caused through inbreeding, provided humans with more raw material for artificial selection increasing the dogs' genetic vigour. A similarity that dogs share only with humans is an unusually large genetic diversity and a worldwide gene pool (Morell, 1997), supporting the theory that humans took dogs with them wherever they went. This ancient bond is seen today in the many ways that dogs interact with humans in the roles of companion, show animal, working dog, and providing assistance to people with sensory and other physical disabilities.

Development of breeds

The International Progressive Breeders' Alliance defines a breed as a subpopulation of dogs that differ from other dogs with respect to certain physical characteristics, which all members of the defined subpopulation share in common. Features that help us to distinguish different types of dogs include function, body size, head shape, coat colour and texture. Distinctive breeds began appearing 3,000 to 4,000 years BP (Clutton-Brock, 1995). The first dogs depicted in works of art in Egypt were of the Greyhound type. At this time in Asia, Mastiff type dogs were used for hunting and guarding. The Romans bred dogs for usefulness and companionship and gave these dogs distinctive names, for example, 'war dogs' and 'house dogs' respectively (Thorne, 1992). However, most dog breeds were developed in the 19th century.

Dogs were bred mainly for utility until the beginning of the 19th century. With the advent of competitive showing in the 1850's, inflexible breed standards of conformation in size, shape and colour were introduced. Following industrialisation and the decline of the use of dogs in baiting and hunting sports, the dog's value as a pet began to increase, perhaps due to the pedigree animal being seen as a status symbol (Thorne, 1992). However, in contrast to the number of service dogs, numbers kept as pets have shown a gradual decrease in recent years in many European countries, possibly due to people spending fewer hours at home (The Pet Food Manufacturers' Association, 2004).

Recently published research (Parker et al., 2004) on the relationships among domestic dog breeds show that different breeds are genetically distinct, and individual dogs can be accurately labelled as specific breeds based on their genotypes. This is a surprising result, given the short time that most breeds were developed, which the researchers believe is due to the "breed barrier" rules formalised by the breed clubs and standards in the mid-19th century. Although individual breeds can be genetically differentiated, ancient breeds appear to have diverged around the same time. This study supports Savolainen et al.'s (2002) theory of domestic dogs originating in East Asia in antiquity, however, precisely how long ago was not identified. Another interesting finding to emerge from Parker et al.'s (2004) study is that some breeds thought to have been ancient, such as the Pharaoh hound and the Ibizan hound, may not be descended from the dogs drawn on Egyptian tomb walls over 5,000 years ago, as commonly believed. Instead, results indicate that these dogs have been 'recreated' in more recent times from other breeds, as although their appearance matches the ancient sight hounds, their genomes do not.

Guide dogs are in the main bred from pedigree lineage, and are therefore disposed to many of the health problems that affect all modern breeds. These genetic diseases are breed specific and include skeletal problems such as hip dysplasia and elbow osteochondritis, ophthalmic disorders, skin problems, and maladies of the major organ systems. Temperament is formed from a marriage of genetics and environment. Temperamental traits that are heritable are specific to the tasks that a particular breed was selected for (Coppinger & Schneider, 1995) and therefore a Collie's herding instinct, or a Terrier's chasing instinct may be difficult to modify. Thus, careful selection and breeding of guide dog puppies from proven guide dog stock minimises the

likelihood of undesirable physical and behavioural traits being carried into future generations and improves the quality of the progeny. Heritability will be discussed later in this chapter.

To reiterate, domestication of the dog was driven by its adaptability and its usefulness to humans. Dogs are relatively easy to handle in that they have a hierarchical social structure where they acquiesce to a more dominant animal. Humans can select and regulate breeding for various functions with comparative ease. Dogs are "trainable for the same reasons that they are tameable" (Coppinger & Schneider, 1995, p. 44), which is a feature of only adolescents and juveniles in the wild. Trainability is a characteristic of neotenic species, including humans, which can continue to learn easily as adults. All of these reasons contribute to why a dog may be used to work as a guide. Characteristics that the RNZFB's GDS consider important in its stock include intelligence, self-confidence, trainability, adaptability, transferability (the dogs ability to transfer its affections and willingness to work from the guide dog trainer[3] to the handler), reliability, health and longevity. It is not yet known if any of these traits are heritable ("No secrets in the lives of guide dogs", 2000).

The next section discusses the evolution of New Zealand's guide dog school, followed by a description of the making of a New Zealand guide dog and its partnership with a handler.

3.3 History of the Guide Dog Movement

Passages attesting to a need for access for persons who are blind can be found in the Old Testament of the Bible (Leviticus & Deuteronomy), and in Greek mythology (Blasch & Suckey, 1995). Historical records show that dogs may have been assisting people who are blind for at least 2000 years, and a wall painting of a blind beggar with his dog on a lead was buried under volcanic debris during the eruption of Vesuvius in Pompeii in 79 A.D. (Ireson, 1991). During the Middle Ages, woodcuts showing dogs apparently leading blind people were made, the imagery becoming more common from the 16th century as depicted in literature, engravings and paintings. A painting featuring guide dogs was hung in the Louvre in 1752, and an 1813 publication referred to a Parisian

[3] Guide dog trainers are people who are qualified to train dogs to become certified guide dogs.

Figure 3.1. A handler-dog team showing the guide dog on the end of a rigid leash attached to its collar. As recommended and pictured by J. W. Klein from his book published in Vienna in 1819, and reprinted in Ireson (1991, p. 17). Picture reproduced with permission from the Guide Dogs for the Blind Association and from Penguin publications.

Figure 3.2. Alfred Morgan and Guide Dog Bella, giving a demonstration to MPs in Parliament Square, London, October 1932. Reprinted in Ireson (1991, p. 61). Picture reproduced with permission from the Guide Dogs for the Blind Association and from Penguin publications.

After using Bella for less than a year, Alfred published the following extract in the June 1933 issue of the Tail Wagger Magazine:

> ... I know, and appreciate, and at one time even envied, the way that some blind men can get about without a dog. There is just this difference. No blind man, no matter how clever he is, can cover the ground with the ease and speed that I can, with Bella's help. Now do you see what I mean by saying that I have regained my freedom? The fact is I have another pair of eyes... (Ireson, 1991, p. 62).

hospital, the Quinze-Vingts, which specialised in the rehabilitation of the blind and assisted the residents to train dogs as mobility aids (Ireson, 1991).

Herr Johann Wilhelm Klein, founder of the Institute for the Training of the Blind in Vienna, was allegedly the first person to methodically train dogs to be guides for people who were blind (Redwood, 1980). He published the earliest surviving description of a systematic method for training guide dogs in 1819. In this report, Klein, who favoured the Poodle and the Shepherd dog for guiding work, discussed the use of a forerunner to the contemporary harness handle, that is, the attachment of a pole to the dog's collar, which was held in the left hand. This, and an early version of the modern harness (i.e. a body piece with a handle attached through which the dog is controlled along with voice commands) are portrayed in Figures 3.1 and 3.2 respectively. Guide dog training was further advanced by Jakob Birrer, a blind Swiss, who published a manual in 1847 based on his experience of training a Spitz, and by Joseph Reisinger, a blind Viennese, who at the end of the 18th century also trained a Spitz, which worked so well Reisinger was believed to be pretending to be blind (Ireson, 1991). Little appears to have been done to extend this work by the sighted community until the 1900s when small breed "leader dogs" were reported as being used by blind people in the USA. This use of small dogs ended with the next major development in guide dog history, when the current preference for large breed dogs began.

The modern guide dog movement started in 1916 with the training of dogs by the German Red Cross Ambulance Dog Association, in co-operation with the Police and War Dog Institute, to lead men blinded in the First World War (Redwood, 1980). The training school, in the town of Potsdam, provided dogs exclusively for war veterans until 1922 when the service was extended to civilians. The methods of training were similar to those used by many modern-day schools, and Oldenburg identified three fundamental principles that continue to be key factors for guiding work: (a) the selection of suitable dogs; (b) careful matching of the dog to its future handler; and (c) ongoing aftercare at the team's home environment (Ireson, 1991).

By the mid-1920s enthusiasts had spread the popularity of guide dog training outside Germany. One such person was Dorothy Eustis, breeder and trainer of German shepherd dogs in Switzerland for customs, army and Swiss and Italian police. In 1927 she visited

Potsdam and wrote an article about the school (Eustis, 1927). Morris Frank, a blind American, read the article and requested that Eustis train such a dog for him (Coon, 1959). A year later, Eustis trained a guide dog (Guide Dog Buddy) in Switzerland for Frank, who became America's first guide dog handler. Together in 1929, Frank and Eustis established the first guide dog school 'The Seeing Eye' in the USA. Eustis set up a second 'Seeing Eye' school in Switzerland soon after, as she perceived a need to train suitable instructors to cope with the demand for guide dogs from the various countries that were showing interest in the movement (Ireson, 1991). Eustis travelled widely promoting the guide dog movement and in 1930 articles on the movement appeared in the British press.

In 1931, a guide dog trainer was sent from Switzerland to Britain at the bequest of two British women, Rosamund Bond and Murial Crooke, to train the first four British guide dogs. In 1934, the GDBA was formed in England. Initially the British public opposed the idea of making these dogs do tasks, however this attitude changed once the first handler-dog teams were travelling independently and the importance of the work could be seen ("Celebrating 30 Years: Happy Anniversary", RNZFB pamphlet, 2003). After the Second World War, the GDBA made steady growth with regional centres setting up throughout Britain, the launching of a puppy-walking programme in 1956 and the development of a breeding programme in the 1960's ("Guide Dogs: Leading the Way to Independence, GDBA pamphlet, 1991).

The basic principles of guide dog training that were recorded by Klein, Reisinger and Birrer, such as the bonds of affection and understanding between the person and dog, and the rewarding of desirable behaviours and the correction of bad are still relevant today (Werntz, as cited in Coon, 1959), although physical punishment for undesirable behaviour is believed to have been harsher then than what is currently practised (Tucker, as cited in Harland, 1992).

3.3.1 New Zealand's guide dog school

From these beginnings, guide dog schools have sprung up all over the world. Around the time Britain was establishing its guide dog movement, New Zealand and Australia, along with Ireland, South Africa, Japan, Israel, France, Norway and Italy were introducing their own or collaborating with international schools (Tucker, as cited in

Harland, 1992). Guide dogs emerged in the Pacific region in 1950, when a guide dog was brought from England to Western Australia - the first in the Southern Hemisphere. Consequently, the first guide dog association in Australia was formed in Perth, Western Australia two years later (Redwood, 1980), which was relocated to a more central location in Kew, Melbourne with the advent of a national centre in 1962. This centre provided dogs for Australia and other countries, including New Zealand, until New Zealand opened its own school in Auckland, the RNZFB's GDS, in 1973. Prior to this, the RNZFB, which was established in 1890, had 16 clients that had flown to either Australia or Britain to obtain and train with a dog before returning home as a team (Harland, 1992).

Problems the RNZFB's GDS encountered in the early days were typical of other fledgling guide dog schools, and included lack of funding, trained staff, volunteers, suitable dogs and genetic stock. Despite this, the school was able to put out seven trained guide dogs per year (B. Peel, a founder and current Guide Dog Instructor of the RNZFB's GDS, personal communication, August 2002). Unfortunately, no records could be found to illustrate the school's growth, although Harland (1992) mentions that the RNZFB's GDS were able to draw on the experience of established guide dog schools, and use this knowledge to make rapid progress.

The opening of the school made the process of obtaining a guide dog far more convenient for New Zealanders. With the support of the community and various charities a new breeding and training facility was opened in Auckland in 1990, thus providing many more people with the opportunity to obtain a dog. This centre remains the only organisation in the country that trains guide dogs, and is accredited by the International Federation of Guide Dog Schools for the Blind. Guide dog use in New Zealand has climbed steadily from 1973. The school extends its experience to help offshore guide dog schools and people seeking to apply for guide dogs and has trained around 700 teams, 300 of which are currently working in New Zealand (G. Welch, Administration Services, RNZFB's GDS, personal communication, 2003 figures).

The RNZFB's GDS was set up to give New Zealanders who are blind or sight impaired greater independence by providing an important mobility aid. The next section describes how a dog comes to fulfil this role, from breeding to retirement.

3.4 Guide Dogs in New Zealand

A summary of the matching process and proposed research design was presented and published in the professional section of the 10th International Mobility Conference, Coventry, England (Lloyd, La Grow, Budge & Stafford, 2000) and the Disability Association of Massey University's Disability Research Awareness Day, Palmerston North, New Zealand (Lloyd, 2001)

3.4.1 Breeds used

Until the breeding facility opened in 1990, the Labrador retriever and first cross Labrador/Golden retrievers were the only breeds used for guiding work in New Zealand. Since then, the RNZFB's GDS, like many other schools, has used a variety of breeds to increase the likelihood of matching peoples' and dogs' personalities and requirements, and to allow people a choice where appropriate. For example, the Golden retriever, which is a breed strong on finding destinations due to an inherent high level of 'self-interest', requires consistent handling to deter the dog from taking advantage of its handler (M. Hooper, Guide Dog Instructor, RNZFB's GDS, personal communication, February 1999).

The Labrador retriever is still the mainstay of guiding breeds in New Zealand and throughout the world. A large amount of international research has been conducted on the breed and therefore a great deal known about it. They are well suited for guiding work due to their temperament and physique, and despite their tendency to scavenge are suitable for matching to many people (Ewart & Blythe, 1993). Inclusive of the Labrador retriever, the RNZFB's GDS currently uses up to 22 breeds including the Golden retriever, German shepherd dog, Boxer, Dalmatian, Curly-coated retriever, Border collie, Standard poodle, Airedale terrier, Flat-coated retriever, Giant schnauzer, Bouvier des Flandre, Rhodesian ridgeback, Australian shepherd and purpose bred cross breeds. The RNZFB's GDS has also trained and/or certified privately owned pet dogs to guide their blind or sight impaired handler-owners[4].

3.4.2 Breeding and whelping

Each year, through the Douglas Pharmaceuticals Guide Dog Breeding Improvement Programme, the RNZFB's GDS breeds around 100 pups for the physical and

[4] Traditionally, unlike a guide dog handler, a guide dog handler-owner retains the legal ownership of the qualified guide dog. A further explanation of the difference between the two types of handlers, which is currently under review, is provided in the Glossary of Terms under *Guide Dog Handler*.

temperamental criteria required of a guide dog, which are discussed later in this chapter. Natural and artificial insemination methods are used from only purebred stock of a known good lineage, including international guide dog breeding programmes that have been purpose breeding for over 40 years. This 'specific to task' breeding has produced a reliable 'type' at a significantly higher rate of success than pups or adults dogs selected at random (Gosling, 1994). Between 3 and 7% of the RNZFB's GDS' guide dogs become breeding stock. Currently the RNZFB's GDS breeding colony has a pool of around 30 stud dogs and brood bitches, and 51 dogs on ice (frozen semen) of the 'proven' breeds of Labrador, Golden and Curly-coated retriever, German shepherd dog and Standard poodle. Nowadays, around 70% of dogs bred graduate as working dogs compared to 18% before the breeding improvement programme. Young dogs of these breeds as well as the more exotic ones mentioned previously are also sourced from outside breeders and from the public. These supplement the breeding programme, which allows for utilisation and investigation of new blood lines and increasing hybrid vigour.

At birth, pups are checked for abnormalities, and colour, sex and weight are documented. Each litter is named by a letter of the alphabet. For example, the "F" litter may have pups Fido, Fifi and Frankie. During the weeks in the nest, physical and temperamental development are recorded including relationships with dam and litter-mates, reaction to reprimand, response to general stimuli, handling, and attitudes to people. Pups that are destined to become guide dogs must be good-natured, intelligent, not be frightened by sudden noises or nervous of people and crowded situations. All pups undergo a rigorous health check and are wormed and fully vaccinated before joining their new human families, known as puppy walkers, at 7-8 weeks of age on the CHAMP Guide Dog Puppy Development Programme. (W. Issacs, Breeding Services Manager, RNZFB's GDS, personal communication, May 1999.)

3.4.3 Puppy development programme

'Puppy walkers' are individuals or families who volunteer to raise and socialise the young dogs. The pup lives with his or her family until it is around 15-21 months, depending on maturity, before returning to the RNZFB's GDS for assessment and training as a guide dog. The pups are taught basic obedience ("down", "sit", "stay", "come" etc.) and are introduced to situations they will face as guides such as noisy traffic, restaurants, shopping malls, public transport, rural situations and crowds. The

dog is identified as a guide dog puppy by the wearing of a red coat when it is in a public setting. The opportunity to become a puppy walker is available to volunteers around New Zealand provided they have the time and a suitable environment in which to raise the dog.

The Puppy Development Programme provides the main source of potential guide dogs. The dogs on the programme are selected from the best available stock in the country, and the goal is to ensure a continuous supply of well-prepared dogs for training as guides. In order to become a confident, calm and friendly dog, a pup should be brought up in an atmosphere of love and human companionship. The role of the puppywalkers is critical to the outcome of the pups' development. When compared to kennel raised pups, home reared pups that are accustomed to town and home life and the human voice, will display a higher degree of initiative when being trained as a guide (Pfaffenberger et al., 1976). It is understood that although a dog can form emotional attachments to humans at any age, it is more likely to form a strong affinity if exposed to people during the traditional 'socialisation period' of around 3 to 12 weeks of age. Certain events and experiences that occur during the 'critical' (or sensitive) early developmental stages of a dog's life can have long-term deleterious effects on the behaviour of domestic dogs, as pups are more sensitive and impressionable at this age, and are vulnerable to psychological injury (Scott & Fuller, 1965).

A group of staff at the RNZFB's GDS provides ongoing support for the puppywalkers with monthly visits and the opportunities to meet other puppy walkers. The costs of caring for the puppy are covered by the RNZFB's GDS. The pup's attitudes towards adults, children and other pets, and its home and social behaviour are monitored as it develops. Puppy walkers are required to adhere to procedures, and write a monthly report of the dogs' health and behaviour. Each dog has its own, Veterinary Health Book and certain veterinary practices are recommended by the RNZFB's GDS to reduce the variation in care. At maturity, the pups are returned to the guide dog centre in Auckland to be assessed for their potential as guides. At this time, the dogs undergo eye examinations, and are radiographed for skeletal abnormalities such as elbow osteochondritis and hip dysplasia that could reduce their effectiveness as a working dog.

3.4.4 Assessing and training the guide dog

Currently, the RNZFB's GDS trains 80 to 90 guide dogs each year, mainly at the guide dog centre. Before training begins, young dogs are assessed for suitability on many temperamental, behavioural and physical characteristics based on Liakhoff's (as cited in Murphy, 1998) classifications of aggressions, fear-related behaviours and sensitivities. Knol, Roozendaal, van den Bogaard, and Bouw (1988) described the ideal guide dog as being in excellent health, of appropriate size, build and coat structure, suitably skilled in the art of guiding, properly behaved (well socialised to adults, children and other animals) and obedient (easily controlled). A dog must also be able to concentrate, adapt to different environments and situations, and be responsive to the training techniques used. Recurring health or behaviour problems may make the duration and cost of training too high, hence the dog should be free of any conditions that affect its ability to cope with the demands of training and work. The dog must also be cosmetically attractive to avoid criticism from the public, and the potential handler. A copy of the current canine temperamental, behavioural and physical analysis regime used by the RNZFB's GDS can be found in Appendix B.

Heritability studies

Early work by M. E. Goddard and Beilharz (1983) identified genetic traits that caused dogs to be considered unsuitable for training as guides, including fearfulness, distraction[5] (especially to other dogs) and aggressiveness. Although these researchers found that awarding a temperamental score early in a dog's training had little ability to predict the dog's performance at the end of training, the scores correlated with the overall reliability of working dogs. They also determined that female dogs were more fearful and more distracted by scent, but less aggressive and distracted by other dogs, than were male dogs. As significant genetic variation for fearfulness and potentially for dog distraction was found, they suggested that future selection on these criteria would improve the standard. M. E. Goddard and Beilharz (1983) also reported that purpose-bred guide dogs were superior to those privately bred. Selective breeding has increased the odds that particular breeds will be predisposed to certain behaviours, for example, German shepherd dogs to police work, and Labrador retrievers to guiding (Wilsson &

[5] A distraction becomes problematic when a dog pays attention to something not related to guiding that leads to reduced efficiency such as loss of obstacle protection or failure to stop at a kerb (Gosling & Holdsworth, 1998).

Sundgren, 1997). However, efforts to establish profiles of particular breeds have usually failed, and as Wilsson and Sundgren point out, the German shepherd dogs used in their study originated from a purpose-bred, closed breeding colony and the comparison may have turned out differently if only privately bred dogs had been used. The RNZFB's GDS immediately withdraws any dog exhibiting nervousness, a high degree of anxiety, suspicion, sound shyness and idiopathic or pure aggression (a condition where the cause of the aggression is unknown) from the training programme.

Heritability studies are important as they offer guidelines to the consequences of selection procedures. However, other factors that shape a dog's personality include the health of the dam during pregnancy, conditions at birth, dam's temperament, and the pup's environment including diet, health, socialisation, medications and hormones (Overall, 2003). With regards to behavioural sexual dimorphism, dogs that are castrated before the age of one year, usually cooperate as well with their trainers as do bitches, suggesting that noncooperative behaviours are hormonally regulated in the male dog (Wilsson & Sundgren, 1997). All RNZFB's GDS' dogs are normally neutered prior to being matched unless the decision has been made to retain the dog as breeding stock.

Although service dog organisations may benefit from being able to evaluate canine temperamental traits from an early age, temperamental tests designed to predict what kind of a dog a puppy will grow into have proven to be unreliable as validity is gained only when the dog has reached social maturity at 18 months to two years of age. However, Serpell and Hsu (2001) developed a method for evaluating behaviour and temperament in one-year old guide dogs by interviewing the puppy walkers and validating the results against the guide dog school's own criteria for rejecting dogs on behavioural grounds. Serpell and Hsu identified eight general behavioural traits, which accounted for around 63% of the variation between dogs and were stable across breeds and sexes. These were (a-d) fear/aggression (to handler, stranger, dog and non-social), (e) energy level, (f) chasing, (g) trainability and (h) attachment. Results indicted that the construct validity of the puppy walkers' assessments of their charges could provide a useful and accurate means of predicting the suitability of dogs for guiding work.

Another useful study that may be applied to the selection of service dogs was recently conducted by Svartberg and Forkman (2002). Using different terminology, they found

five personality traits common to all dogs: (a) playfulness, (b) curiosity/fearlessness, (c) chasing instinct (prey response), (d) aggressiveness and (e) sociability. With the exception of aggressiveness, the traits were combined to form the "shyness-boldness continuum" where bold dogs were considered highly trainable; a finding that was apparent among breeds, sexes and individual dogs within breeds.

The following segments describe the RNZFB's GDS' method of assessing and training their dogs.

Assessment

A pre-training assessment called the '20 Walk Assessment' is begun if the pup's monthly health and behaviour reports while being 'puppywalked' are satisfactory. The dog is walked 20 times in a variety of environments by a certified guide dog trainer over a 2-3 week period including the city centre and rural areas at busy and quiet times, shopping malls and public transport. For the first five walks, the dog is on a long lead with minimal input from the trainer. This allows the dog's natural behaviour to be observed. During the next 15 walks, the trainer gradually introduces obedience control and encouragement where necessary. During this phase the dog is accustomed to wearing the harness in order for the dog to associate wearing it with work.

Many different characteristics are displayed during the 20 walks. For example, a dog that appears meek on a short lead can exhibit dominant traits when allowed a free rein. The trainer in conjunction with the overseeing guide dog training manager then makes a decision to accept or reject the dog for continued training. About 70% of the dogs entering the training programme graduate as qualified guide dogs.

Training

Suitable dogs undertake a programme of intensive guide dog training lasting 4 to 6 months that familiarises dogs with working environments and conditions from rural areas without pavements to busy inner-city streets. In particular circumstances, some dogs are specially trained to suit the specific needs of handlers who have been potentially matched to these dogs. For example, a dog may be trained to work on the right hand side for someone who does not have the use of his or her left hand; the side a dog is normally trained to work on. During both the assessment and training the dog's

progress is monitored and recorded by the trainer, under supervision. Before continuing with the RNZFB's GDS' method of analysing their dogs behaviourally and physically, the following segment addresses the principles of how dogs are taught to guide.

How do dogs guide?

Dogs learn to guide by association, that is, operant conditioning where there is a contingency between the response and the presentation of the reinforcer. To illustrate, once the dog has performed a required task, it is praised and/or petted, which increases the likelihood of it repeating the desirable behaviour (positive reinforcement). If the dog behaves inappropriately, it is punished by being verbally reprimanded and/or receiving a physical correction through the collar and lead.

Knol et al. (1988) divided the dog's skills into three categories of ability: (a) to perform tasks on command, (b) to perform tasks without a command and (c) to refuse tasks on command. Training is based on five basic principles (Harland, 1992): (a) habituation, (b) trial and error, (c) conditioning reflexes, (d) self-preservation and (e) willingness to please the handler. A typical guide dog will learn up to 50 commands. The dog is trained to respond to the command "forward" while working, but is required to stop at intersections, down-kerbs and down-stairs, indicate up-kerbs and up-stairs, and turn right and left at the handlers' instruction (Redwood, 1980). This progresses to phrases such as "find the steps" or "find the door", which can lead to "find the dairy" or other destinations (R. T. Edwards, 2002). However, this progression may be achievable only if the destinations were nearby, as dogs do not generally find locations by name.

The dog learns to guide its handler in as straight a line as possible, while deciding on a safe path of travel around obstacles. This 'straight-line concept' is the foundation of guiding work, and drifting to either side, turning a corner or crossing a road diagonally is discouraged unless the dog has been instructed by the handler to override its primary task. Correspondingly, when an obstacle is negotiated the dog is encouraged to return to the straight line as soon as it is safe to do so (Ireson, 1991).

As mentioned previously, the guide dog is usually trained to walk on the left side of the handler. In order to avoid the handler's right shoulder or head colliding with an object, the dog learns to expand its critical area (personal space) to include the width and height

of the handler. Although the dog is trained to follow instructions from the handler to reach a destination, there are situations where the dog uses its own initiative (which it has also been trained to do); this is illustrated by the following example.

How does a guide dog cross the road?

The responsibility of crossing a road rests with the handler, not the dog. Roads can be difficult to cross if traffic is excessive and flowing from several directions. If so, handlers are advised to drop the harness handle and seek help from a passer-by rather than take a risk. However, if the crossing is familiar and straightforward, the dog will stop at the down-kerb, the handler will listen and when he or she judges that it is safe to proceed, a "forward" command' is given. If the dog judges that no vehicles are approaching within the 'critical' distance that it has been trained to recognise as a signal to become stationary, it will lead its handler across the road. If the safety zone has been encroached, the dog uses its initiative and does not obey the command. Traffic work is becoming more challenging due to the increasing volume of traffic and the advent of the quieter car, which is harder for the handler to hear, and many guide dog schools are adapting their training to compensate for this (Fisher, 2001).

Canine temperamental, behavioural and physical analysis

After every training session, a detailed behavioural and physical analysis record is completed for each dog (Appendix B). The behavioural traits are measured subjectively, and are quantified by being assigned a score on a sliding scale from 1 to 9. The mid-point, 5, being the mean average level expected of a working guide dog. A score in the direction of 9 indicates that the dog exhibits more of that behaviour than the average dog; conversely, a score towards 1 means that the dog exhibits less. For instance, a dog with very good 'obstacle clearance' work may score a 7 or an 8 for that trait, while a dog with mediocre abilities in that area may score a 4. Another example is a dog that is not easily distracted by other dogs scoring a 2 or 3 for 'dog distraction'.

The goal of this system of assessment is to highlight any extremes in either direction of the midpoint. It is a useful tool for matching as it indicates significant changes in magnitude, rather than good or bad scores. What is determined as a good score for one type of guide dog handler may not be a good score for another depending on the handler's individual needs.

Difficulties can arise when different trainers measure temperamental characteristics subjectively. Murphy (1998) found that discrepancies in scoring were due to anthropomorphism and misunderstanding a dog's behaviour, and that elements of behaviour were common to more than one behavioural category necessitating interpretation from several aspects. At the RNZFB's GDS, an experienced overseer evaluates scores for discrepancies, and inter-rater reliability is maximised by staff training in standardised evaluation methods.

The outcome of each dog's behavioural and physical analysis is recorded numerically, along with a description of the dog's breeding, puppy history and pre-training assessment, on an electronic database. Towards the end of training, each dog is digitally videotaped performing a walk with its blindfolded trainer in several different environments and conditions, and the recording is downloaded into a short MPEG video file. The behavioural and physical histories for each dog are electronically distributed, via a spreadsheet with links to the digital images, to the New Zealand instructors lap top computers and to instructors from overseas schools that will be participating in the matching process. This allows the instructors to familiarise themselves with the dogs ready to be matched and initiates preliminary matching decisions. The variety of traits that are evaluated, as shown in Appendix B, are awarded a final score by the trainers on the following categories: trainability, reliability, role acceptance, handler transferability, temperamental suitability, health (longevity) and matchability.

Factors affecting training include the dog's learning ability, previous experience and health, and dogs that excel as guides might associate work with pleasure (L. Roe, Guide Dog Trainer, RNZFB's GDS, personal communication, December 1999). Dogs that do not meet the standards may be withdrawn at any time during the assessment or training period. Those not qualifying may graduate as service dogs or become companion dogs for people with disabilities other than vision loss, graduate as service dogs with the police, customs or Ministry of Agriculture and Forestry, or be offered back to donors. Otherwise, the dogs are adopted as pets by the families who puppy-walked them or to other approved homes. Once a dog graduates from training as a qualified guide dog, it is ready to be matched.

3.4.5 Matching the dog to a handler

To reiterate, matching is the process of finding the most suitable guide dog available for an individual. Although, unlike the acquisition of most pets, the handler does not get to choose his or her dog. The RNZFB's GDS' staff meet twice yearly at the guide dog centre to match available dogs to current applicants. Each meeting lasts around 10 days, and approximately 40 teams are matched in order of priority. Precedence over first-time applicants is given to those who have either previously relied on a guide dog for mobility or are currently relying on a dog that requires replacing (replacement applicants). People with special needs including additional non-visual (secondary) disabilities and/or personal circumstances that make using a guide dog more important are also matched preferentially.

The time a person has spent waiting for a dog is also considered. Currently, most replacement applicants receive a new dog at the next scheduled matching meeting, while most new applicants wait between six months to one year. All matches depend on the availability of a suitable dog. However, some dogs have specific needs that are accommodated by matching the person to the dog rather than vice-versa. For example, dogs with fragile footpads or certain skin problems are not matched to people who travel predominantly on hard, loose surfaces or live in hot, humid areas respectively.

Eligibility of applicants

In order to apply for a guide dog, the applicant should be eligible to receive services from the RNZFB by being blind or markedly sight impaired. When residual vision is evident, eligibility is determined if the visual acuity is less than 6/24 (20/80) in the better eye after the best possible correction, or the visual field does not subtend 20 degrees at its widest angle.

Although it is not mandatory to have received O&M training before applying, it is considered useful if the applicant has adequate O&M skills for her or his needs. For some people, having poor or no long cane mobility skills may not be detrimental to travelling with a guide dog, although in order to travel safely applicants should be well oriented to their usual destinations (I. Cox, General Manager, RNZFB's GDS, personal communication, December 1999). For example, a person with limited O&M skills, who only travels to a few destinations, may be matched with a dog requiring a low

workload[6]. Where applicable, when the RNZFB's GDS receives a mobility report from an applicant's O&M instructor and a medical report, comprising ophthalmologic, diabetic, and audiological status, a guide dog instructor will conduct a personal interview and an assessment. As mentioned in the review of the literature (Chapter 2), the fields of O&M and guide dog O&M training are complementary, and often it is the O&M instructor who influences a person to apply for a guide dog (Milligan, 1999).

Working with a guide dog can be strenuous, although, as also mentioned in the previous chapter, secondary disabilities such as diabetes, hearing loss and neurological conditions may not preclude eligibility. For those with multiple disabilities, the individuals should have sight impairment as their primary disability. All applicants are considered on an individual basis, and no upper or lower age limit applies. There has been a paradigm shift in guide dog schools philosophy over the years regarding the criteria required for applicants. In New Zealand, the onus is no longer on the applicant to prove why she or he is eligible for a dog, but rather on the RNZFB's GDS to show why she or he cannot be trained to work with a dog.

Assessment of applicants

The interview between the instructor and the applicant is conducted in the latter's home, and assessments are carried out in his or her working environment and routes of travel. The instructor may gauge the applicant's abilities by having him or her conduct a test walk (or Juno walk). The Juno walk is useful for assessing the applicant's abilities and to enable the instructor to demonstrate a point (Whitstock et al., 1997). It is performed by the applicant holding a guide dog harness by the handle while the instructor manipulates the harness to simulate the dog. The instructor may also gauge the applicant's travel abilities and how she or he interacts with a dog by bringing along a dog for these purposes. This 'assessment dog' is usually a dog in training that the instructor believes may be a suitable match for the applicant or will assist with making a matching decision in the future. During the interview, the responsibilities of both the applicant and the RNZFB's GDS are discussed. Training with a guide dog can be physically and mentally taxing for both new and replacement applicants, and the

[6] For the purposes of this research, the intensity of a dog's workload can be defined as the *environment* the dog works in plus the *quantity* of the work a dog is expected to perform.

potentially stressful nature of training is emphasised. With the applicant's permission, family members, whanau (extended family) and close associates also participate in the interview process, as a guide dog will affect the dynamics of the handler's relationships and role within a community.

Many applicants express a preference for physical and/or behavioural attributes in a guide dog. These may be a specific breed, colour, sex, level of affection and excitability. This is fully discussed during the interview, and expectations are reviewed. For example, an applicant who will only accept an exotic breed such as a Boxer is informed that he or she will probably wait longer for such a match compared to the more readily available breeds such as the Labrador or Golden retriever. The applicant is made aware of certain breed specific behaviours; for example, although Boxers are deemed 'good with children' they can become overexcited if matched to a handler with several youngsters. The applicant's personal preferences for a type of dog is respected and adhered to if possible. However, the instructor is not inhibited from considering other suitable matches, and a compromise may be made in order to reach a mutual agreement. Decisions such as matching a Standard poodle, a breed that does not shed hair, to someone who is allergic to dog hair, or a dog that is capable of working at more than one speed for someone who occasionally is slowed down by pushing a pram are necessary if the best match is to be made. Other factors considered during the interview and assessment will be discussed later in this chapter under the heading *Matching criteria*. The applicant's ability to care for a dog's health and welfare, and the provision of adequate dog-keeping facilities are ensured and the applicant is placed on the waiting list to be considered for a match at the next meeting.

The matching meeting

All the RNZFB's GDS' managers, instructors, trainers and trainees participate in the matching meetings, along with delegates from overseas (mainly Australasia) who are present to match dogs to their own applicants. Although having a large number of participants complicates the process and lengthens the meeting, a group forum is considered advantageous. Benefits include an enhanced range of perspectives and experience, staff development, and sharing the responsibility of making matches and dealing with mistakes. In addition, some overseas schools provide trained dogs that go

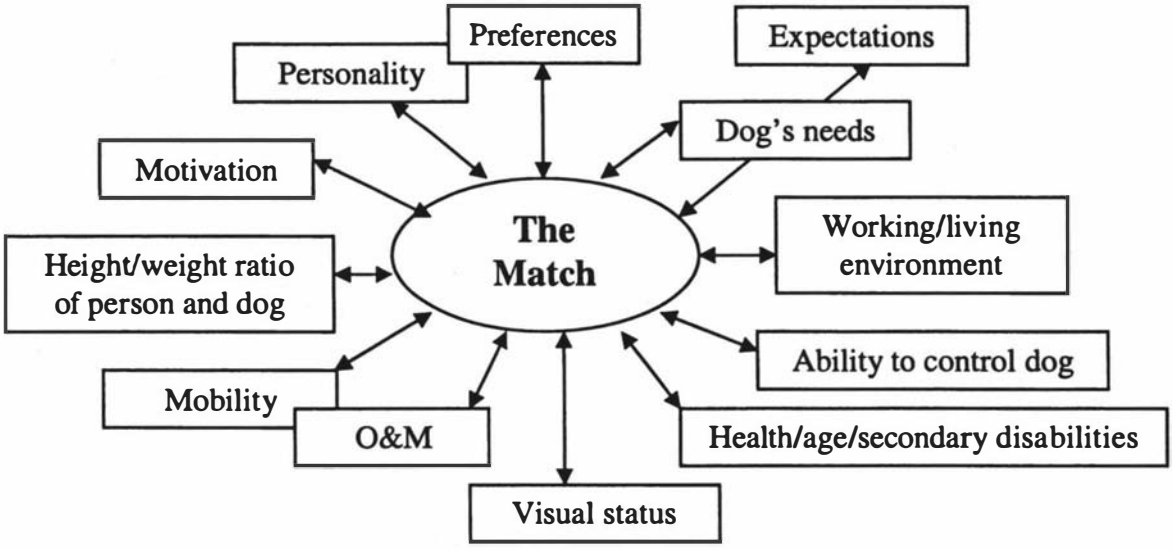

Figure 3.3. Critical considerations when matching a person with a guide dog.

into the pool available for matching. The RNZFB's GDS also benefit financially by training staff from, and selling dogs to, overseas organisations.

During the first week of matching, the behavioural, physical and working history of each available dog is discussed, and the dog is observed working with its trainer and sometimes with different instructors in several locations. Introducing other handlers allows various aspects of the dog to be seen, as the dog will work differently for each handler. Applicants do not attend the meeting. The instructors, who represent the applicants from their region, describe their applicants verbally and by video recording, and information concerning the clients and/or the dogs can be accessed via laptop computer. As the meeting progresses, matches are tentatively proposed, thoroughly debated and provisionally agreed. During the second week, applicants are informed of the outcome of the meeting, and matches are confirmed if the applicant accepts the dog. Plans are made and procedures are put in place to train the handler and dog team to a level where they can graduate to independent mobility.

Matching criteria

Matching may be simply defined, but the practice is complex and involves myriad considerations in relation to the compatibility of the person and the dog. As with the dog, the human elements of the match are categorised quantitatively and/or qualitatively into physical, behavioural and psychological characteristics concerning work and non-work related factors. Some of the critical factors considered during matching, which were identified through the researcher's (author of this thesis) ethnographic fieldwork, are shown in Figure 3.3.

Most of an applicant's physical characteristics such as height, weight, gait, balance, strength, level of fitness, stride length, preferred walking speed, visual and audiological status can be identified and measured. Psychological factors are less easy to identify and more difficult to measure, but no less important to consider. Personality traits considered include patience, coping skills, locus of control, emotional status, and neurologic function. Is the applicant energetic, warm or aloof, assertive or compliant? Instructors believe that these and factors such as the handler's ability to understand, relate to, control and direct a dog (physically and by voice), establish respect and maintain leadership, and motivation are pivotal in the decision making process (Farrugia

et al., 1998; Misso, 1994; L. Hornsby, Operations Project Manager, Guide Dogs for the Blind Association, personal communication, September 1999).

An accurate assessment of the required workload is fundamental to the success of the guide dog team (Knol et al., 1988). This includes routes of travel, volume of work, degree of repetition, and intensity and complexity of the environment. For example, a high volume of work over a relatively unstimulating environment will require a dog with stamina but not necessarily high initiative, and vice-versa for a short but mentally challenging journey. A mis-match under these circumstances may overtax the dog with low coping skills, and drive the bored, resourceful, dog to invent ways to enhance its own quality of life rather than that of the handler by taking opportunistic shortcuts or becoming increasingly distracted. To complicate matters further, temperamental and physical traits can overlap. For example, in order to provide stability to someone with poor balance, a dog normally considered too large for that person may be selected, providing the dog is controllable by voice and willing to physically support its handler.

3.4.6 Training the handler-dog team

Before training begins, the dog is given (or 'preallocated') to its new handler for approximately two weeks. The pre-allocation period is the time a dog spends with its new handler before team training commences to allow familiarity, establish a routine and facilitate emotional bonding. On delivery, the instructor teaches the handler how to care for and manage the dog, and ensures the handler is aware that he or she is only a telephone call away from support if required.

Matching is only the beginning. The dog has to learn that the new handler is assuming the role of leader from the instructor and will be maintaining the dog's training; a difficult task even for experienced handlers. In the early days of the relationship, many dogs will challenge their new handlers by sniffing, looking around and general lack of concentration (Murphy, 2001). At this stage, instructors balance supporting the trainee handlers and preventing the dog from losing confidence through the handler's inexperience. Training the team takes around 3-4 weeks, depending on the handler's needs and abilities. Often a choice of training location is offered. The handler may be solely trained in his or her home environment (domiciliary training), reside at an institution established for training purposes with other trainees (residential training), or

travel from home to a designated area for group training with other trainees (centre-based training). Some handlers receive 'combination training', which is an initial bout of residential or centre-based training that concludes with domiciliary training to consolidate what was learned over familiar routes.

Training with a guide dog can be mentally and physically exhausting for the handler, and ergo, anthropomorphically, the dog, which R. T. Edwards (2002) compared to taking five hours of driving lessons a day. The incentive to succeed with a match may be considerably influenced by the relationship with the instructor (P. Hooper, Guide Dog Instructor, RNZFB's GDS, personal communication, May 2000). Indeed, Andersen (1998) suggested the role the instructor plays is equally important to that of the right dog with the right handler. Timely intervention by the instructor may prevent any problems becoming unmanageable. Therefore, regular follow up visits and telephone contact between instructor and trainee are important for a successful outcome to the matching process. At the end of training, the successful trainee and dog will graduate as a working team. An effectively matched and well-managed team will likely realise its full potential, whereas a mismatch may vary in effect from reduced mobility to a complete breakdown of work (Steele, 1994).

3.4.7 The working team to retirement

For the first six months or so, the new handler sends a progress report every two weeks to the RNZFB's GDS, which is evaluated and action taken if necessary. In addition to being reachable by telephone for emergencies, the instructor visits the team and completes a written report four times in the first year, and then annually until the dog nears retirement when the team is visited more frequently. Handlers who are well oriented to their locality may teach the dog new destinations, and teams are also taught new destinations during routine follow-up.

During the follow-up assessment, the handler's and the dog's health, wellbeing and needs are discussed, guiding equipment checked, and the team is observed working and interacting socially. Unlike some guide dog schools, New Zealand dogs are not retired automatically when they reach a certain age. Instead, assessments are conducted up to four times per annum once a dog approaches the age of eight to check that the team is functioning at the required standard. As discussed in the previous chapter, retiring a

guide dog can be a very difficult time for the handler. Often the team has worked together for many years, and a profound and intuitive partnership has developed. The handler has the option of retaining the old guide dog as a pet while using a new one as a guide. This relationship works for some, but may not be practical for others. Some people already have pet dogs, an option that was not always permitted in New Zealand prior to 1991, and some retired guide dogs may not be content in their new role as a retiree at home while another dog works as the guide, as illustrated by the following quote from an interview conducted by Sanders (1999, p. 57):

> I know that someday I'm going to have to replace Freda, but I don't want to think about it. I wish she could live with me forever. But, for whatever reason she has to retire, I could never have her at home watching me go out the door with another dog. I just couldn't do that to her... at the same time, I couldn't have her walk behind the other dog and have to share my attention.

Retired dogs that do not remain with their handlers are frequently adopted by a friend or a family member of the handler, the puppy walker or an approved pet home. In many instances, if a handler dies the dog may be rematched to another handler.

Returned dogs

Dogs may be returned to the RNZFB's GDS for many reasons. Not all dogs that are returned are considered to have been mis-matched. Dogs may be returned for many other reasons including ill health of person and/or dog or changes in the handlers' personal or social circumstances (such as family issues and moving home). Returned dogs may be rematched to another handler or have their status as a guide withdrawn (see the Glossary of Terms under *Retired Dogs* for a further explanation of how retired dogs compares to dogs that are returned or withdrawn). The outcome of the handler-dog partnerships in this study, in terms of whether dogs were currently working, retired, accidentally deceased, returned or being considered for return, or withdrawn is examined in Chapter 7, section 7.19, and rematched dogs are discussed in section 7.21.

3.5 Conclusion

Because of the interactions between the body and the mind, there may be no one ideal dog for any individual and success can happen in many combinations, although it should be remembered that newly qualified guide dogs are usually young and boisterous, and may be a poor match physically for unfit or elderly handlers. At the

most basic level, Andersen (1998) and H. Robson (1985) suggested combinations to avoid included matching a large, strong dog to a small, frail person, and a 'soft' (sensitive) dog that reacts to the smallest of verbal and/or physical commands to a domineering person, and vice-versa. Professional judgement regarding the needs and abilities of person and dog, and consideration of individual circumstances over a range of factors increases the likelihood of a successful match. However, not every applicant might be matched and there is always a risk of a mismatch, as the process cannot be absolute. H. Robson (1985, p. 356) qualifies this by stating: "It may be determined that a person's mental or physical characteristics are such that it would be impossible to match him [or her] with any canine, let alone one optimally suited to his [or her] individual characteristics and environment".

This concludes the background information regarding guide dogs in society and the making of a handler and dog partnership in New Zealand. While a body of knowledge exists on concepts to do with matching and to support the observations that the use of a guide dog improves the handler's mobility, social and other cognitive factors, and that problems and limitations relating to guide dog use exist, there is a clear gap on what constitutes a successful or an unsuccessful match and the outcome of the relationship. This will be discussed in the next and final section of this chapter.

3.6 A Gap in the Literature: Success or Failure of the Partnership

Many members of the assistance dog movement were reported as "suspicious" of the results of studies that extol virtues but fail to report failures in the areas of training and placement of service dogs (Eames & Eames, as cited in Miner, 2001). A comprehensive study of guide dogs was conducted on behalf of Guide Dogs for the Blind, Inc. (Pfaffenberger et al., 1976). As part of this study, Fuller (1976) found that the cause for discontinuance of the partnership, regardless of the age of the handler, was due to handler-related reasons one third of the time, and the remainder for dog-related reasons, with physical incapacity or death being the major factor in both categories. More dogs stopped working for health than for behavioural problems, however dogs were still being returned for behavioural problems after five years of use. No links were found between how the guide dog trainers rated a dog and the cause of return. Fuller concluded that it was impossible to tell if the dogs that were returned were poorer performers as they may have been required to work under difficult conditions or if the

handlers were unwilling to tolerate a weakness. The subcategories of the behavioural problems were not identified in this study, however some dogs that were returned for behavioural problems were successfully rematched to other handlers.

Gray and Todd (1968) identified that of 13 ex-guide dog handlers, five had not pursued getting a replacement dog when their dog died, four had experienced difficulties once away from the training centre, three had given up the dog due to health reasons, and one who kept a retired dog as a pet stated that he or she would probably retrain with a new dog once the dog died. However, the reasons why replacement dogs were not requested were not identified, nor were the difficulties experienced. Likewise, although Harland (1992) stated that mismatches occurred and Nicholson et al. (1995) reported that 15 of 59 participants' dogs (25.4%) were withdrawn, neither study identified the reasons why the partnerships failed. However, the authors stressed the need to understand why some partnerships do not succeed.

In order to assist with the applicant selection process at Guide Dogs for the Blind Inc. in the USA, Carlson (2000) conducted a retrospective search for demographic and knowledge differences between a group of 10 people who had successful relationships with their guide dogs and a group of 10 who did not. Overall, few exclusive characteristics emerged, although the sample was small and thought to be non-representative of the population. However, Carlson suggested that people who have recently moved to another house might not be in an ideal position for training due to compromised orientation, and the dogs' requirement for a stable home environment to develop. Carlson noted in her conclusions that there was a strong suspicion among her colleagues at Guide Dogs for the Blind, Inc. that motivation was central to success and despite being difficult to measure would be worth quantifying.

In summary, the review of the theoretical, methodological and practical literature in this and the previous chapter has identified the need to establish quantitatively how a guide dog affects the handler in terms of mobility, social and cognitive factors, and how this influences the match. Much of the information reviewed in this chapter is discussed from the professional rather than the consumers' perspective. As the values implicit in outcome measures are predisposed to concur with the values of the professionals conducting the research (DeJong, 1997), the outcome of this context may fail to

represent the community of interest. Hence, before research questions and hypotheses were formulated and a questionnaire designed, a focus group discussion was held to explore how these assumptions related to handlers in New Zealand. The methodology, results and a short discussion of the focus group findings are presented in the next chapter.

4
The Focus Group

Preliminary results of this study were presented and published at the research section of the 10th International Mobility Conference, Coventry, England (Lloyd, Budge, La Grow & Stafford, 2000), and a concluding manuscript (Lloyd, Budge, Stafford & La Grow, 2004) has been submitted for publication in a scientific journal. A copy of the former paper can be found in Appendix D.

This chapter describes a focus group discussion of people with a range of visual disabilities and experiences with mobility aids. The aim of this preliminary study was to explore peoples' experiences with guide dogs and other mobility aids, and the development and consequences of the partnership, as a basis for constructing a survey questionnaire to assess the matching process and its outcomes in New Zealand. This method was chosen as focus group interviews are an established means of identifying areas for further development via structured surveys (Morgan, 1996), and are a relatively simple and accessible way of collecting this information from a target group (Fowler, 1993). In addition, as guide dog use is relatively under researched, it was thought appropriate to identify and investigate issues raised by the participants themselves. This chapter will present the focus group methodology, results and a brief discussion of the findings. Results and limitations of the study will be addressed and incorporated with those of the cross-sectional survey in the final chapter of this thesis (Chapter 11).

A focus group is a group discussion that centres on a specific topic of interest to a researcher/s, and consists of a group that has the focus of interest in common (Hawe, Degeling, & Hall, 1990). The goal is not to represent the group's views statistically, but to provide insight into attitudes that underlie behaviour (Carey, 1995) by collecting a range of information on personal experiences, understandings and beliefs. Data obtained from a focus group interview is different from information that would be elicited from an individual interview, as the group data reflects the collective notions shared and discussed by the group, while the latter reflects the non-synergistic views and opinions of an individual (Berg, 1995).

4.1 Methods

4.1.1 Sampling procedure

Participants were recruited by invitation. Inclusion criteria for this study were that the participants be members of the RNZFB and currently reside within a short travelling distance of the venue for the focus group. The venue was Massey University's Institute of Veterinary, Animal & Biomedical Sciences, as it had the benefits of being a neutral establishment, centrally located, and had good facilities for people and dogs. Participants were offered transport to and from the venue.

A sampling frame of 14 eligible participants was obtained from the RNZFB database. Contact was initially made by a RNZFB staff member who mailed the 'Invitation to Participate' packages (Appendix C) to these potential participants. The invitation package consisted of a participant information document supplied in the person's preferred format of Braille, audiotape, or regular or large print, plus a consent form and a pre-paid, addressed envelope. A paper copy was provided with every Braille document and audiotape, for the addressee to share with others if he or she chose. Agreement to participate was implied by the return of the signed consent form to the researcher (author of this thesis). This direct contact enabled confidentiality and anonymity.

4.1.2 Participants

Eight people returned the consent form to indicate that they wished to participate in the study, however, one person was unable to attend due to poor health and another had to leave town at short notice. A request was made to allow one person's partner, with normal sight, to participate also. As this eventuality had not been considered in the original study design, advice was sought from the appropriate human ethics committees. The satisfactory outcome was that the partner participated as (a) the other participants did not object, and (b) the partner signed a consent form agreeing to the terms and conditions of the study. Therefore, seven people took part in the discussion.

Each of the participants was telephoned to arrange a convenient time for conducting the discussion, and demographic information was collected during the call. Of the seven participants, three were currently using a guide dog, and one person who had previously used a dog was temporarily using a long cane while waiting for a replacement dog. Two

participants had chosen not to use guide dogs; one's preferred form of mobility was a long cane, while the other did not use any mobility aids. The participating partner lived with a guide dog handler.

The sample included both sexes, ranging in age from 26 to 56 years, with a mean age of 32.9 years. Experience with guide dogs was varied and ranged from one to 14 years of usage, which included successful and unsuccessful matches with six dogs in total among them. With the exception of one of the handlers, all the participants with visual disabilities had been trained to use a long cane. Visual status was diverse in onset and severity.

Sources report that focus groups are most successful with between 6 and 10 volunteers (Krueger, 1994; Morgan, 1988). Therefore, all the participants were included in a single group discussion. In addition, it was hoped that the differences between those who used guide dogs and those who did not would stimulate discussion within the group (Kitzinger, 1995). During the discussion, the researcher acted as moderator and facilitator, and one of the research supervisors was a co-facilitator and note taker of non-verbal behaviour and other dynamics not recordable on audiotape.

4.1.3 Procedure

On arrival at the venue, participants and their guide dogs were welcomed and introduced. They were then seated around a circular table and refreshments were served. An audiotape machine was placed at either end of the table, and the entire discussion was recorded. The co-facilitator drew a map of where people sat to aid with recall on transcription of the tapes. A decision not to use video recording had been made by the researcher, as this was felt to be too intrusive for the group.

At the onset, the researcher gave an overview of the research design and issues of confidentiality and anonymity were discussed. The wording of the consent form was reiterated and each participant verbally stated, on audiotape, that they agreed with these conditions. The participants were reminded that the researcher was not employed by the RNZFB, and that they could be as open as they wished, as any information provided would be kept confidential and not used in a way that could identify a particular participant, unless permitted to do so. As per M. W. Smith's (1995) advice to minimise

Table 4.1. List of topics to be discussed during the focus group

Topics
The decision to use or not to use a guide dog
Factors affecting mobility
Adjustment to vision loss
Preferences for particular dog types
The matching process
Training with a guide dog
Advantages and disadvantages of using guide dogs
Changes in quality of life associated with guide dog usage (mobility, social function, companionship)
Reasons dogs are rejected
Feelings at the end of the partnership
Relationship with the RNZFB's GDS

disclosure from within the group, and to alleviate any apprehensions participants may have on this subject, participants were requested not to repeat anything that was raised during the discussion with outside individuals. Participants were given the opportunity to ask questions of the researcher prior to and throughout the discussion.

The moderator's role during the exchange is to help focus the discussion and probe unclear comments or issues (Asbury, 1995). Thus, a list of topics (Table 4.1) was prepared to ensure that the issues the researcher wished to focus on, arising from reviewing the literature and consultation with guide dog professionals, were included. However, as Carey (1994) held that 'wandering' from the subject matter may be an important concern of the target population and therefore should be permissible and recognised, a relatively unguided approach was taken. The participants were encouraged to discuss a range of topics covering the factors they considered important for mobility and for achieving and maintaining a successful match with a guide dog. Participants were also reassured that any area was worthy of discussion and that the goal of the study was not consensus (Kitzinger, 1994).

In order to initiate discussion, all were asked to respond to the question "What are your experiences with guide dogs and other mobility aids?" This had the advantage of bringing everyone into the conversation on an equal basis. The discussion flowed spontaneously and covered all areas that the researcher wished to cover with minimal input and probing from the moderator. However, to minimise the possibility that the group influence distort individual opinion, the moderator encouraged the more passive group members by asking their opinion on some matters raised. .

The discussion was continued until all the participants had raised the issues they wished to – a process that took a little over one and a half hours. The researcher finished the session by asking what peoples' wishes for their future were regarding being RNZFB members and/ or GDS' clients. At the end, the audiotapes were switched off and the participants were given another opportunity to ask questions of the moderator. The participants were thanked for their contribution and informed that they would be notified of the results when they became available. Arrangements were then made for exercising and watering the dogs, and transport was provided where requested.

4.2 Analysis and Results

The researcher transcribed the audio recording for analysis shortly after the meeting concluded, while impressions were fresh. Although there was only one transcriber, pseudonyms such as *Long Cane User*, *Guide Dog Handler 1*, *Dog 1*, etc. were used in the transcript to maintain confidentiality and anonymity outside the focus group, and phrases such as [my dog] and [the instructor] were substituted for real names. The tape was transcribed in the manner suggested by Hawe et al. (1990), that is, that qualitative data be verifiably analysed via a 4-step, systematic procedure. Therefore, the data were *organised* in a workable order, *shaped* into categories of patterns and themes, *summarised* and *explained*.

Eight themes emerged from the discussion. These were (a) factors concerning mobility, (b) adjustment to vision loss, (c) advantages and disadvantages of using a guide dog, (d) matching, (e) training, (f) social function, (g) feelings of family and friends and (h) the outcome of the relationship.

4.2.1 Mobility: to use or not to use a guide dog

As there were guide dog handlers and non-handlers participating, the issue of why some people chose not to use a dog was raised. In response, one non-handler felt that although he had contemplated getting a dog he travelled quickly with his long cane and, despite running into objects, thought that a dog would slow him down. He also believed that independent travel was a matter of confidence. The other non-handler stated that although he was "blind enough" to qualify for a dog, he did not need one as he had a lot of central vision useful for mobility and could see relatively well, although if his vision worsened he would want one, but mainly for companionship. A handler commented that he felt he had too much vision when he applied for his first guide dog, and therefore would not be considered an appropriate candidate. However, the "bad-good news" was that he was eligible, and found that his vision worsened considerably during the years spent working with the dog. In this group, people who chose to use dogs initially did so primarily to improve their mobility and become more independent.

One handler commented to another:

> You were good at [long cane] mobility, so you only wanted a dog like mine [specific breed]... Once you got your dog, you realised that you were not so good at mobility after all! [laughter]

In response, the handler who had chosen to use a dog despite being a skilled long cane traveller maintained that travelling with a dog was faster and much less stressful, and that one arrived at destinations feeling energised, as the dog did all the hard work. This was backed up by other comments such as "I go into a daydream with [my dog]".

The issue of why only about 2% of New Zealand's vision impaired population (*N* = approximately 12,000) at the time of this study chose to use a dog, when a third of the population were eligible, was discussed. It was speculated that this was due to only one in eight RNZFB members being "truly blind" and because most members were elderly; the rationale being that elderly people may not want a dog, or that they would not benefit due to the kind of eye condition they probably had (see discussion on age related macular degeneration, which causes loss of central vision, in Chapter 2, section 2.2.2).

4.2.2 Adjustment to vision loss

The issue of adjusting to vision loss was raised, which was probed by the moderator asking whether guide dogs might help people adjust. The response was that it depended on individual circumstances such as the type and duration of the sight impairment. Guide dogs were considered beneficial for mobility only if the handlers had significant functional deficits; otherwise, the dogs were just pets. Dogs were thought to be less likely to help people adjust if the handler had been blind a long time and thus were "good at being blind".

The assumption that dogs help people adjust to vision loss is complicated. Other factors leading to adjustment were discussed including learning O&M skills, social support, and learning adaptive technology such as specialised computer software packages and daily living skills. One handler, whose vision had been lost suddenly, stated:

> I would not be where I am today if I did not have the dog. It changed my life completely; made me move on and gave me the confidence and the independence to do it.

4.2.3 Advantages and disadvantages of guide dog use

In addition to enhanced mobility and more independence, other advantages of guide dog use raised included: increased self-esteem, companionship causing feelings of loneliness to abate – especially when travelling, and getting lost was deemed less likely provided the dog was a "problem solver". Another advantage mentioned was that when travelling with a human companion, the use of a dog enabled a more relaxed conversation than when travelling using the sighted guide technique[1], as the enforced proximity requires the guide to speak straight ahead and not towards the person being guided.

Disadvantages raised included poor social behaviour such as scavenging, and having to consider the dog's welfare. One handler said that, despite loving her dog, if she had enough sight to get by she would not have one, which she likened to the responsibility of having a small child around. Those who had used dogs nearing retirement age found the age-related reduction in mobility frustrating. However, all the people who had used guide dogs indicated they would continue to do so.

4.2.4 Matching

Some people were satisfied with the input they had into their match, while others requested more to do with "the black box that is the mystery of matching". This included more consideration for lifestyle changes; in particular for younger people who may be more likely to move location and have different housemates. A comment was made that if a dog was well trained lifestyle changes should not be a problem, which was countered by another's opinion that not all dogs are adaptable or robust enough to cope with all environments.

There was agreement that matching the dog's walking speed to the handler's was of paramount importance, but the dog's personality also had to gel with that of the handler (which is illustrated later in this chapter). One handler was concerned about how speed was gauged:

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[1] A sighted guide is a person with vision who serves as a guide to a person who is blind. The technique involves the person who is being guided grasping the upper arm of the guide, directly above the elbow, and following one step behind.

> How fast you walk can depend on how familiar you are with the environment... I was sight guided by [an instructor], who's good at sight guiding, to gauge my speed, but I didn't necessarily want a dog to work so fast; I'd die on arrival! [laughter]

This was followed by someone leaning over his very fast walking dog and asking if it was listening, to more hilarity.

The issue was raised that family members were not involved enough in the matching process. The partner present said that although he had not been included in the pre-matching discussions with the guide dog instructor he had not expected to be. While others believed that 'significant others' should be consulted on how a dog is likely to change their lives, and that their opinions be taken into account. More attention concerning pets was also wanted. One handler had come close to returning his dog, as it was aggressive to his pet cat. In this case, the situation was resolved with the cat eventually dominating the dog. However, another handler's cat dealt with the trauma of being continually chased by a new guide dog by moving in with the next door neighbour, much to the handler's partner's distress and highlighting a situation where other household members can be affected by the addition of a dog to a household. It was conceded that if the instructor knew the handler well, there was less need for questions regarding lifestyle. This part of the conversation concluded with a story about someone who had received a German shepherd dog (a breed believed to be extra sensitive to changes within the hierarchy) being jokingly told by the instructor not to go changing partners as the dog was fussy about who was in its pack.

The length of time people spent waiting for dogs was discussed, and there was concern that the waiting list was growing longer. It was thought that waiting was more difficult if one was used to guide dog assisted mobility, and that the lack of independence may force some people into accepting a less favourable breed that was more readily available. It was suggested that people should not set their hearts on a particular breed to avoid disappointment and increasing the waiting time, but that their preferences should be taken seriously.

Several handlers wanted their next dog to be a different breed than the current one despite having a good relationship with the current dog, as they worried about

comparing the two. The partner present also did not want his partner to have the same breed again mainly due to the "social liability" factor of having a greedy dog. This led to some amusing stories including one person's dog who licked the pearls hanging round a solicitor's neck, another's who "washed" the ice-cream off the faces of babies who were being pushed past in prams, and the dog who "goosed" people from behind at the supermarket. It was also mentioned that sighted people often made insensitive comments if, for example, the handler expressed a preference for a particular colour of dog: "Who cares about the colour... you can't see it anyway".

4.2.5 Training

Guide dog training issues occupied a large part of the conversation, with several instructors from over many years discussed. Some participants felt that being trained to use a guide dog was very stressful, which was exacerbated if O&M skills were limited and/or by lack of empathy from the instructors. One handler had a particularly negative training experience the first time around, and felt that training had been "a psychological process designed to reduce a blind person to a gibbering jelly".

> What should have been the biggest adventure of my life [getting a guide dog] turned into a terrible nightmare... black despair really. The dog played up, and the instructor shouted at me in public. I shouted back, [which was] not good for public relations. It didn't have to be like that.

Conversely, other handlers had different training experiences:

> My experience was fine; I didn't get humiliated. It took three weeks, but I felt I was ready after two, as I knew the area really well.

> I was taken from someone with no dog experience to a competent handler of a difficult dog in just three weeks: an amazing transformation.

It was felt that a lot of time was wasted sitting in a vehicle while undergoing residential training (with others away from home) versus domiciliary training (one-on-one training from home). The overall opinion was that there had been many positive changes over the years regarding training, including the shift to home training. Advantages of this were the availability of social support from being in the family environment, little disruption to routine and that one could train in familiar routes. An advantage regarding residential training that was not possible with domiciliary training was the opportunity

to assess how well the dog worked with no unwitting input from the handler, which may happen if the handler is familiar with the territory. For example, the handler slowing when approaching a known down-kerb before the dog had made the decision to do so.

The "golden rule of training" seemed to be that "the dog is never wrong, always the user". It was wished that the instructors would account for the fact that handlers most often did not know that their dogs had done anything wrong until it had happened, simply because they could not see. This is exemplified by:

> The dog did something crazy, and I got bawled out for holding the harness the wrong way! [murmurs of agreement]
>
> That's nothing. I was walked into a lamppost and the instructor laughed! [hilarity]

Much was made of the fact that people liked the current instructor:

> That's our instructor... we all really like [the instructor] you know. Especially the dogs. Because of [the instructor], we can take almost anything.

It was conceded that training was more difficult and frightening if the handler had poor or no O&M skills, and that the RNZFB's GDS should take this into account and not rush individuals who were less confident. It took a while to get used to the feel of the harness handle and therefore what the dog was doing, and that having some experience with pet dogs before obtaining a guide dog was helpful. The more experienced handlers believed that training with subsequent dogs was easier and a one to two-week refresher course from home was adequate.

4.2.6 Social function

Although it was generally agreed that guide dogs improved social function by encouraging social interactions the minute the dog was used, the initial exchange was usually with the dog and not the handler, and the dog was often touched without permission. There was dissent on how much contact the dog could comfortably attract from the public; for example, children exciting the dog versus welcome attention. One person felt that if people asked if they may touch the dog then it was the handler's duty to enhance public relations for the RNZFB's GDS and permit as much fraternising with

the dog as time and mood allowed, while another preferred people to keep their hands off the dog altogether. However, all agreed that interference without first asking for permission and while working in harness was objectionable. The media was criticised for leading some people to think that they must never approach a guide dog team, even when not working. This was illustrated by one participant's experience with a shopkeeper who severely reprimanded an employee for attempting to pat the dog after requesting and being granted permission from the handler.

The following quote depicts how inappropriate notice from the public can lead to problems with the dog's work:

> My dog was very popular when I attended [university] classes. People would clap their hands on [the dog's] head whenever they walked by because his head was just at the right height. One day I found myself in a French class by mistake... the dog had just followed someone who paid him attention.

Once it was realised that the dog was going to pay such notice to other people, the handler dealt with the situation by encouraging as many people as possible to fuss over the dog until the dog stopped paying attention. This behavioural modification technique, called 'flooding', was utilised when the dog was standing stationary in-harness, but not walking.

One of the handlers, who had an active social life, felt the dog's presence and needs hindered her enjoyment in crowded places such as pubs and sometimes wished that she could "hang up the dog like a long cane", but agreed that the situation may be different when she is older. Another handler said that using a dog improved his social life, as he now frequented cafés due to the ability to smoothly negotiate tables; something he never had the confidence to do with a long cane because he had felt awkward and clumsy.

The following quotes, although told as amusing anecdotes, illustrate that inappropriate social behaviour of the dog is not only embarrassing to the handler, but can restrict social interactions.

> I was at a barbecue where they were serving meat and it wasn't until I got home and couldn't get the harness off over the dog's head that I realised it had a big steak hanging out of its mouth. [laughter] Nobody had said anything... I mean I walked home with the dog like that. I considered not taking the dog to social functions after that.

> I was forbidden to take [my dog] to social functions at work due to the 'Niagara of saliva' dangling from her mouth whenever we were about the food.

4.2.7 Family and friends

Participants' family and friends had mixed reactions towards guide dog use, from positive and supporting, to feeling rejected and undervalued. Some people in the group had been encouraged by family members to get a dog in order to be more independent, while others felt the dog to be competition and preferred to be the mobility aid when travelling together with the dog. Some friends, who had served as sighted guides for years, were infuriated, as they perceived the acquisition of a guide dog to be a rejection of their goodwill and skills to keep their friend safe, and did not believe that a dog could do a better job. These friends eventually accepted and liked the dog. Another's friends loved the dog from the outset and no importance was given to whether the handler was walking with them using the dog as an aid by way of the harness handle, or by sighted guide (with the handle dropped). However, some dogs did not work well when there were others walking alongside as illustrated by the partner's comment:

> If I am walking with [my partner] and [my partner] is using the dog, the dog will stop and look at me and then at [my partner] as if to say, "why should I work, let him sight-guide you".

The group speculated that this was due the dog 'knowing' it was not really needed and/or confusion about its role in making decisions.

4.2.8 The outcome of the relationship

It was observed by the participants who chose not to use dogs that some handler-dog teams seemed to "click", while other teams did not, even if the dog seemed to be doing what was required of it. The handlers suggested that this might due to a lack of trust on the handlers' part that the dog would keep them safe. It was noted that good relationships with dogs might take six months or more to achieve, but that perseverance usually paid off.

> I kept a diary. It took six months to get a good working relationship going with [my dog], then it was wonderful; same for [my previous dog]. It was worth it, but frightful while it lasted.

In this group, despite the problems with pet cats, only one of the six dogs used was deemed mismatched. This dog, which was the handler's second dog, was returned after a relatively short period mainly for inconsistent speed. It was also too small, and while this did not negatively affect the handler's balance, its short stride-length rendered it incapable of walking in front of the handler who felt constricted on the footpath. The dog was also described as "a nonentity of a dog, with no character whatsoever". As it was apparent to the handler that his and the dog's personalities were incompatible, he speculated that the dog was over-conscientious and/or worried, which may have led to its hesitant guiding. The group proposed that dogs could be rejected for many reasons, with social behaviour deemed as important as compatibility of physical attributes such as the dog's walking speed. With the exception of the mismatched dog, handlers developed strong emotional bonds with their dogs. In some cases, the dogs also became attached to others, which some handlers found upsetting.

Two of the four handlers had experienced the end of a partnership. One "didn't enjoy it" and the other, who had been mismatched and returned his dog relatively quickly, felt "relieved". Another handler, whose dog was nearing retirement, was looking forward to a young, sprightly dog of an exotic breed despite dreading parting with her old dog, and the remaining handler, who had received his first dog fairly recently found the scenario difficult to contemplate. Concerning being asked how they might feel about receiving a subsequent dog, feelings were split on whether it was preferable to have a break between the dogs and obtaining the new one immediately.

4.3 Closing the Focus Group

At the time the focus group was conducted, the RNZFB was undergoing an organisational restructure. Hence, the discussion concluded with the expressed hope that the RNZFB would continue with the present practical, client-driven trend enabling more people to access guide dog and other services more quickly. It was also hoped that the RNZFB's GDS would be able to keep up the close relationship it had with its clients.

Participants were offered a summary of the research findings. They were not offered a transcript of the interview for verification and clarification, but were invited to an oral presentation at Massey University where they had the opportunity to comment on the content. One participant attended and one point regarding training was amended.

4.4 Brief Discussion

The themes identified from this focus group discussion: mobility, adjustment, advantages and disadvantages, matching, training, social function, family and friends, and the outcome of the relationship provide some understanding of why people use dogs as mobility aids, what their experiences are and what changes the dogs make to their lives. Handlers indicated that overall they were fundamentally happy with their dogs, as they experienced more independence, better mobility, increased self-esteem and confidence, companionship and enhanced social interactions than previously. Disadvantages of using guide dogs, such as the inconvenience of constant vigilance and attention were outweighed by these advantages.

Similarities between these results and those found by Harland (1992), Miner (2001), and Refson et al. (1999) suggests that there are core issues associated with the experience of using a guide dog. All four studies found that quality of life in general was improved through better mobility, and increased confidence, independence and self-esteem, but that there were negative as well as positive aspects. For example, the responsibility of caring for a dog and the inconvenience of dealing with a dog in some social settings were noted. While none of the other studies addressed the issue of matching, a number of work and non-work related suggestions that might influence the match were proposed during the focus group. These included the importance of the dog's walking speed; compatibility of the person's and the dog's personality; more consideration for lifestyle and lifestyle changes, family dynamics and other pets in the household; breed preferences, and that training be as stress-free as possible. Participants also proposed that although dogs could be rejected for many reasons, the dog's social behaviour was as important as mobility.

Other comparisons that parallel those in the literature include why people chose not to use a dog or thought they might be ineligible, and feelings at the end of the partnership. As in the present study, Refson et al. (1999) and Refson, Jackson, and Plant (2000)

found that people chose not to use a dog because they thought that their mobility was not sufficiently impaired or because they felt like a "fraud" for having too much vision. The focus group did not address the issues that arise at the end of a partnership with a guide dog in detail, as only two participants had experience of this. However, the viewpoints that emerged (i.e. an unpleasant experience and an easement) support the conclusions of one UK study (Nicholson, 1993; Nicholson et al., 1995), which reported the end of the partnership to be upsetting even if there had been problems in the relationship. Although, the exception to this was if a mis-match had ended after a relatively short period with no real bonding, as was the case in the focus group.

The undertaking of this preliminary study fulfilled its purpose as an information gathering exercise. It generated ideas and aided in identifying areas to be explored and the formulation of research questions that are presented in the next chapter, and helped to develop a survey questionnaire to answer these questions. The results and limitations of the focus group will be summarised and discussed in context with those of the survey in the final chapter of this thesis (Chapter 11).

5
The Survey Research Issues

5.1 Goal Definition

The principal aim of this research was to understand the relationship between a handler and a guide dog, from the handler's perspective, in order to improve the outcome of the matching process. Given the lack of previous research, the objectives were to explore the relationship to establish what changes the dogs made to the lives of the handlers, measure how compatible the handler-dog teams were, and identify and quantify the factors that are associated with the success or failure of the match.

Based on the literature, themes arising from the focus group and ethnographic fieldwork, key areas were identified for exploration. These included (a) demographic information (including the handler's visual status), (b) expectations of guide dog usage and how well these expectations were met, (c) training issues (d) overall compatibility on work and non-work related issues, (e) the dog's effects on travel performance and on (f) quality of life, and (g) the outcome of the partnership. In addition, suggestions were gathered on how the handlers felt the RNZFB's GDS might improve services offered.

5.2 Research Questions

In order to quantify what factors were important for creating successful partnerships, a range of testable and non-testable questions were formulated. These questions, which will be developed in later chapters, include:

- *What are the handlers' expectations concerning guide dog use?*
- *What are the handlers' attitudes towards training with a guide dog?*
- *Is there a significant relationship between how well the handlers' expectations were met and matching success?*
- *Is there a significant relationship between compatibility and matching success?*
- *Do factors relating to both mobility (work related) and non-mobility (not work related) have a significant effect on matching success?*

- *How does the use of a guide dog affect quality of life?*
- *What other factors are associated with matching success?*
- *Is there a significant relationship between the amount of useful, residual vision and matching success?*
- *Is there a significant difference between the handlers' evaluation of their travel performance before and when they used a guide dog?*
- *How does the use of a guide dog affect travel habits?*
- *What are the advantages and disadvantages of using a guide dog?*
- *What is the outcome of the handler and guide dog partnership, and why are some partnerships unsuccessful?*
- *What issues arise at the end of the handler and guide dog partnership, and what effects do they have on a subsequent match?*

A questionnaire was developed to achieve the objectives of this study, which was used in a cross-sectional survey of current and previous guide dog handlers nation-wide. The methodology used to construct this measure and the data collection procedure are described in the following chapter.

6
The Survey Method

6.1 Sampling Procedure

The population of interest for this study was all people living in New Zealand who were, or had been, clients[1] of the RNZFB's GDS since its establishment in 1973. The population at the time of participant recruitment (May 2001) was approximately 210, and was obtained from the RNZFB's GDS' database of client records. No exclusion criteria were applied. The method of recruiting participants, and obtaining informed consent, was as for the focus group sampling procedure described in Chapter 4, section 4.1.1. Therefore, the initial contact was made by a RNZFB's GDS staff member who mailed the 'Invitation to Participate' packages (see Appendix C) to the target group, and the consent forms were returned to the researcher (author of this thesis) directly.

Initially, only 11.4% (n = 24) of the target group responded by returning the consent forms. This low response rate was assumed to be because the RNZFB was in the process of being organisationally restructured and the clients might have associated the study with a potentially negative outcome for GDS. Several clients had contacted the RNZFB's GDS with this concern. To alleviate this worry, the RNZFB's GDS sent a letter to inform their clients that the organisation supported the study. This action, along with advertising the project in various RNZFB's publications, and voice messages left on the RNZFB's Telephone Information Service, resulted in a response rate of 71.9% (n = 151), of which 50 participants were selected, as justified and described below.

The original intention had been to interview all those responding, concerning their relationships with each of the dogs they had used. However, due to the higher than expected response rate, and the fact that most respondents had used more than one dog, it was decided to interview 50 participants, which equated to approximately one quarter of the entire population of guide dog handlers in New Zealand. The decision to include

[1] A client is a person who is either currently or has previously used a RNZFB's GDS' guide dog, and/or is on the waiting list for a new dog.

all the dogs that had been used in the data collection was retained as it was felt that the differences in the participants' feelings towards the different dogs were important.

The four guide dog handlers who took part in the focus group discussion were included in the 50 participants, as the researcher had established a relationship with them that was considered useful for beginning the data collection. The remaining 46 participants were selected by systematic random sampling, where the consent forms were organised in the order they were received and every third form was selected until the target number of 50 was achieved. A detailed description of these 50 participants is included in the next chapter, section 7.1. The respondents (n = 101) who were not selected were notified of this outcome, thanked, and were reassured that their desire to participate increased the reliability of the study due to facilitating a more random selection.

6.2 Data Collection

As no existing measures could be found which explored the handler and guide dog partnership, a new survey instrument was constructed. A copy of the questionnaire along with the introduction and culmination to the interview appears in Appendix A.

6.2.1 Survey design

A mixed design, non-experimental approach was taken, comprising of a single observation enabling *between* subjects (conditions between different groups of participants) and *within* subjects (conditions within the same group of participants) comparison. The information collected was a mix of retrospective, current and/or prospective data depending on whether the participants (who were all either currently using and/or had previously used a dog/s) were being asked about their experiences before they used guide dogs or about their first or subsequent dog/s. To illustrate, the participants were asked to remember their experiences *before* they acquired their first dog and *when using* each dog thereafter. Thus, responses to the questions pertaining to *before* a dog was obtained yielded retrospective data, while responses to the time when a dog *was used* yielded current data if the participants were currently using a dog, and a mix of retrospective and current data for those who had used more than one dog. Prospective data was obtained from those who were currently using their first dogs and who were asked to project how they might feel at certain times, for example, at the end of the partnership.

The survey instrument consisted of a structured, self-report questionnaire that was delivered via telephone (78%), face-to-face interviews (20%), or a combination of both (2%). The telephone survey technique is recommended by the RNZFB as a useful means of obtaining opinions from its members, and in many surveys of exclusively face-to-face interviews rural residents are under-represented (RNZFB, 1990). Face to face interviews are also more expensive in terms of travel time and costs. Use of the telephone facilitated a nation-wide survey and, additionally, as around 12% of the RNZFB's GDS' clients are 'deaf/blind' (people who have combined hearing and sight impairments), it offered a viable means of communication with some deaf/blind people, whose hearing was improved by the telephone hand-piece blocking background noise. However, two deaf/blind participants asked not to be interviewed by telephone, as one was only able to lip-read, and the second preferred to communicate with the researcher via an interpreter. Some participants, who lived within a short distance of the researcher, also requested a face-to-face interview, which was granted.

Despite the lengthy nature of the questionnaires, a postal survey was disregarded for several reasons. Some participants would have had trouble in reading a regular (font size 12) or enlarged printing format, and if the questions were read out and answered by proxy, for example, by a friend or family member, this may have affected the response. The creation of Braille documents would have been prohibitively bulky and expensive, and aside from the impracticality, most New Zealanders who have a visual impairment or are blind do not read Braille.

6.2.2 Survey instrument

The questionnaire contained six sections, which are described later in this chapter. These were (a) general, (b) information on each guide dog used (c) guide dog rating, (d) mobility (e) quality of life and (f) service delivery and miscellaneous. The questionnaire, which was administered in this order, took between one and six hours to complete, depending on how many dogs each participant had used and how much they wished to discuss. Most of the sample (64%) had used a second dog, and the average interview took around 2 hours to deliver. Participants were informed that they could stop the interview at any time and postpone the remainder if they wished. Although the interviews were lengthy, most were completed in one sitting, and participants found them to be an enjoyable and/or cathartic experience. Several of the participants

continued to call the researcher after completion of the interview, as they enjoyed discussing life with their dogs.

As part of the initial planning of this study, the researcher corresponded with J. Nicholson (personal communication, October 1998) who had investigated distress arising from the end of a partnership with a guide dog (Nicholson, 1993, Nicholson et al., 1995) regarding methodological issues when designing a study for a vulnerable population. J. Nicholson advised to put in place procedures to support a handler who might find discussing the end of a partnership distressing. Hence, provision was made for referral to an appropriate councillor if necessary. However, this option was not required.

Open-ended and forced-choice questions were used to gather the data. The inclusion of the open-ended questions obtained the participants' views of reality, thoughts, ideas and memories, rather than any preconceived notions the researcher may have. According to Reinharz (1992), this approach reduces the possibility that participants feel alienated from the research. The data obtained from open-ended questions[2] was subjected to content analysis and coded into categories and themes. Forced-choice format included differential rating scales[3] (continuous scale from 1 to 10 with opposite attributes at either end), Guttman scales (cumulative), ranking order, multiple choice or a simple 'yes' or a 'no' response.

6.2.3 Delivery

The questionnaire was tested for clarification of wording and concepts with four sighted Massey University students, in face-to-face and telephone interviews before being piloted on some of the participants. It was appreciated that the students were dissimilar to those in the main enquiry, and hence the exercise was of little relevance and sensitivity concerning visual impairment issues. However, this run through provided an estimate of how long the questionnaire would take to deliver and improved the researcher's interviewing skills.

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[2] Note: Multiple responses resulted in many percentages not adding to 100.

[3] A 10-point scale with no mid-point was chosen as scales with more than seven categories are considered to be more reliable and the lack of a mid-point negates possible respondent bias towards the central option (Foddy, 1993).

The questionnaire was then pilot tested with the four, now familiar, participants that had attended the focus group, whose suggestions were incorporated into the measure. Once the fourth person was interviewed, the previous three were contacted and asked to respond to any additional or revised questions. Data collected from pilot tests is not commonly included in the final analysis. However, in this study data from all 50 participants was incorporated as the pilot data fitted descriptively with the rest of the dataset and was considered too valuable to disregard in terms of amount, quality, overall small sample size and length of time taken to collect. The pilot data was not analysed separately on a statistical level.

Suggestions that were incorporated included improving ambiguous wording, and instead of asking participants to rate their travel performance from their *overall* experience with guide dogs, they were asked to rate the dogs they considered *unsatisfactory* mobility aids separately from the *satisfactory* ones. This was due to pilot participants, who had experienced dogs that were unsatisfactory as mobility aids, not wishing to provide only one rating. Another revision that was made was the order in which participants were asked about their dogs. Initially the questions had been arranged to discuss the situation with the current, or most recently used dog first, however those who had used more than one dog found it easier to consider their earlier experiences and how these changed over the time they used their subsequent dogs.

The remaining 46 interviews were initiated by the researcher telephoning the participants, introducing herself and reiterating the purpose of the study. Participants were asked if the time and venue were suitable for them to be interviewed and if not, an appointment was made for their convenience. Participants were reminded that the information gathered would be used in such a way that they could not be personally identified (unless they specifically requested to be), and as the study was independent of the RNZFB, they may be as open as they wished. They were also reminded that they did not have to answer every question and that they could withdraw from the study at any time without giving a reason. The topics to be covered were reviewed and participants were encouraged to ask questions at any time during the interview. At the close of the interview, the participants were thanked and informed that they would receive a

summary[4] of the results in due course, and were invited to contact the researcher if there were issues they wished to discuss further.

The interviews were conducted, recorded, and the data coded into numerical categories by the researcher alone. Hence, consistent definitions of terms were provided, and probing of ambiguous or incomplete answers to clarify issues was standardised. The interviews were not audiotaped, as it was feared that a recording device might inhibit response.

6.3 Description of the Survey Instrument

6.3.1 Section 1 - General

The first section of the questionnaire asked for a small amount of general demographic information about the participants including their visual status and history of guide dog use. Participants were also asked what they expected the dog to do for them in terms of mobility, social-function and companionship, and what behaviours and physical characteristics[5] they would ideally like a guide dog to have, in order of importance. Data was also collected on their previous experience with pets.

It is suggested in the literature (R. D. Goddard & Villanova, 1996; C. Robson, 1993) that beginning a questionnaire with routine demographic questions should be carefully considered as participants can construe this as dull. However, it seemed prudent to do so here as guide dog usage can be an emotive issue and the researcher did not wish to begin with sensitive questions. In addition, for reasons of etiquette, the interview was initiated with issues pertaining to the person and not the dog.

6.3.2 Section 2 - Information on each guide dog used

This section asked participants about the first guide dog they acquired, which was repeated for subsequent dogs, where applicable, in chronological order. The

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[4] Results have been provided via publication in Outlook, the magazine of the RNZFB, and verbally via the RNZFB's Telephone Information Services network, as the research has progressed. A summary of the final results will also be mailed to the participants when the thesis is completed.

[5] As far as possible, responses to questions pertaining to behavioural and physical characteristics were coded in keeping with the RNZFB's GDS' Canine Temperamental, Behavioural and Physical Analysis, as shown in Appendix B.

grammatical tense was changed from past to present where appropriate. For example, the question "What *was* good about this dog's behaviour?" was asked if the dog had been used previously, while "What *is* good about this dog's behaviour?" was asked for the dog currently being used.

General dog demographics were recorded, as was status of dog ownership[6], whether or not each trainee handler-dog team graduated as a working team, and as some participants received their dogs overseas, the country of origin was documented. Participants were asked if their partnership with a specific dog had ceased, and if so, why. Also recorded were the time spent waiting to receive a dog, training issues, workload, what was good and bad about each dog behaviourally and physically (see footnote 5 in this chapter), resolution of problems, how expectations regarding guide dog use were met, friends and family's attitudes towards the dog, compatibility concerning mobility (work related) and non-mobility issues, and overall assessment of the match. The canine section ended with issues regarding the end of the relationship and how this affected the participants' desire to use another dog.

Further demographic information concerning the time participants received each of their dogs was recorded retrospectively, as was the relationship participants had with their guide dog instructors at these times. The participants were asked to 'self-report' on the amount (none, a little or a lot) of residual vision useful for mobility they had when they received each of their dogs, as per the pragmatic approach of Gray and Todd (1968) and Kirchner, Johnson, and Harkins (1997). Section 2 of the questionnaire was finished by asking participants about their dogs' names, which, unless the dog is a trained pet are named as puppies by the RNZFB's GDS, as this was deemed a neutral way of ending an interview concerning one dog before embarking on another dog or a different section.

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[6] Privately owned pets that are trained and validated by the RNZFB's GDS as qualified guide dogs, remain the legal property of the owner. See the Glossary of Terms for an explanation of a *Guide Dog Handler-Owner* versus a *Guide Dog Handler*, where, in the latter case, the dogs are the legal property of the RNZFB. Note: For the purposes of this research, all persons who use guide dogs are referred to as handlers.

6.3.3 Section 3 - Guide dog rating

To ascertain what dog factors were important, participants were asked to gauge what they liked best and least concerning their dogs. Participants who had used more than one dog were asked to identify their most and least favourite dogs, and to state what was the best quality of the favourite dog and the worst quality of the least favourite dog. If only one dog was used, the most and least favourite qualities were recorded for that particular dog.

6.3.4 Section 4 - Travel (mobility)

This section aimed to empirically determine the participants' perceptions of their travel skills and travel habits before and after a dog was acquired, and the efficacy of the dog as a mobility aid.

Participants were asked to respond to a 15-item questionnaire that rated their travel performance *before* (retrospective data) they became guide dog handlers and *when using* a dog (current or retrospective data depending which, if any, dog was being used at the time of interview). The following five travel performance indicators were measured in three ways as described in the next paragraph (a) orientation, (b) mobility, (c) O&M, (d) difficulty[7] with travel, and (e) limitations[7] to travel. Participants were informed that travel performance pertained to independent travel with or without a mobility aid excluding a sighted guide, and the definitions for orientation, mobility, and O&M were explained as described in the Glossary of Terms.

Unlike the second section of the questionnaire (as described in section 6.3.2 of this chapter) where each dog was measured individually, this part was designed to measure dogs together in a general fashion - the rationale being to avoid making the questionnaire too large. Also, as discussed earlier in this chapter (section 6.2.3) the pilot study participants, who had used more than one dog, had initially been asked to answer questions pertaining to the time they used a dog in terms of their overall experience. However, the pilot study identified that participants found it difficult to rate dogs they

[7] The terms 'difficulty' and 'limitation' were adapted from a Difficulty and Limitation Scale (Blasch, De l'Aune & La Grow, 1995) that investigated the effects of O&M training on specific long cane travel skills thought to be positively affected by O&M training (La Grow & Craig, 2000).

considered to be satisfactory mobility aids with unsatisfactory ones collectively. Therefore, the questions were designed to elicit two responses if applicable, that is; when using 'satisfactory' dogs separately from 'unsatisfactory' dogs, regardless of how many dogs were in each category. For example, a participant who had experienced two satisfactory dogs and one unsatisfactory dog had his or her performance on each of the five travel skills measured in three ways (1) before using a dog, (2) when using the satisfactory dogs and (3) when using the unsatisfactory dog. Each of the three dimensions was measured on a 1 to 10 rating scale with opposite poles of that skill at either end (i.e. 'very poor performance' and 'excellent performance').

How often participants travelled was not considered an indicator of travel performance, as it was understood from the researcher's fieldwork that there were many factors involved when making the decision to travel such as the weather, the dogs' needs, work habits etc. Therefore, travel frequency was measured separately, using the same methodology as travel performance.

The decision to ask the participants to recollect their travel skills from before they received a dog, as opposed to their current situation when travelling independently without a dog, was made as the use of a dog may cause the handler's travel skills with other mobility aids (e.g. a long cane) to diminish through a lack of practise, thus affecting outcome. In addition, all four of the participants who were pilot tested stated that they never or almost never used other mobility aids when they had a dog.

In addition to assessing travel performance and frequency of travel, a series of open ended questions were asked in which participants identified any mobility aids used, journeys avoided and access problems to specific environments. Participants were asked to respond to these questions from their experiences with guide dogs in general under two conditions, that is, when travelling *before* acquiring a dog and *when using* a dog (without being split into experiences with satisfactory and unsatisfactory dogs). Satisfaction with long cane O&M training prior to acquiring a dog was recorded, and any non-visual conditions that affected mobility such as hearing loss or problems with balance were noted and how these conditions restricted mobility were measured before and when using a dog. The section ended with participants being asked to list the advantages and disadvantages of using a guide dog compared to other mobility aids.

6.3.5 Section 5 - Quality of life

This section enquired about the dogs' effects on quality of life issues such as social function, adjustment to sight impairment, general health, fitness, and mental health. Participants who had experienced the end of a partnership, and hence a period of non-guide dog assisted mobility, were asked how this affected their quality of life; those who had not had this experience were asked to project how they might feel at this time. Like the previous section on travel (section 6.3.4), this section was designed to measure dogs together in a general fashion for reasons of expedience.

6.3.6 Section 6 - Service delivery and miscellaneous

The final section of the questionnaire comprised miscellaneous questions concerning issues that the participants in the pilot study suggested be incorporated. These issues included the pre-allocation of dogs before training is begun (to facilitate emotional bonding), the venue where training of handler and dog should take place, the re-matching of dogs that were returned by previous handlers, legal ownership of dogs and whether expectations of guide dog use changed according to the experience of the handler. The interview ended by assessing how satisfied participants were with the services provided by the RNZFB's GDS, and suggestions were asked as to how GDS might improve the matching process and other services.

6.4 Notes on Ethics

The application to the various ethics committees is covered in Chapter 1, section 1.2.1. The process of submitting the application allowed the researcher to apply ethical principles throughout the Ph.D. process such as informed consent, confidentiality, security of information, minimising of harm, truthfulness and social sensitivity in compliance with the Code of Ethical Conduct for Teaching and Research involving Human Subjects (Massey University, 2000). In addition, ethical approval is a prerequisite for internal and external funding for employees and students of Massey University.

6.4.1 Confidentiality and anonymity

Confidentiality was assured by the researcher being solely responsible for conducting the interviews and coding and analysing the data. Participant anonymity was not guaranteed, as all participants, bar one, consented to the researcher requesting further

information from the RNZFB's GDS if required. Interviews, by nature, do not offer respondents anonymity from the interviewer. However, as for the focus group, the participants were made aware that the researcher was not employed by the RNZFB and that any information provided would be kept confidential and not used in a way that could link a response with an individual, unless permitted to do so.

6.4.2 Data entry, storage and disposal

Data was entered into a statistical software package called SPSS™ for Windows (versions 10 and 11) via a password-protected personal computer that was linked to Massey University's computing network. This software was used to analyse the data, which was regularly backed up onto a central, password-protected, shared computer drive and on compact discs. Only the researcher had access to the data. The completed, written questionnaires and back-up compact discs were stored in a locked filing cabinet at Massey University, and copies of both formats were kept in a locked filing cabinet in a secure location remote from Massey University (researcher's home). The data, including the audiotapes from the focus group, will be archived at Massey University for 10 years after publication and then destroyed.

6.5 Statistical Analysis

As an exploratory approach to data collection was used, the questionnaire was long and generated a great deal of information from which the central themes were identified and analysed. Hence, once the data set was screened and cleaned from errors, a variety of descriptive and inferential statistical techniques was used to answer the research questions described in Chapter 5, test hypotheses and report on interesting trends emerging from the data. These techniques will be described along with the relevant results in the following four chapters (Chapters 7 to 10).

The significance of test results are based on the traditional probability level of $p < .05$, as suggested by Coolican (1996). All probabilities reported are based on two-tailed tests, as each comparison had two possible directions. However, as this research is non-experimental, statistically significant associations and correlations cannot prove causality (Oppenhiem, 1992). The strength of the relationships between variables were interpreted using Cohen's (1988) guidelines where the size of the value of the Pearson product-moment correlation coefficient (r), which ranges from -1.00 to 1.00, indicates:

- a small correlation/weak relationship $r = .10$ to $.29$ or $r = -.10$ to $-.29$
- a medium correlation/moderate relationship $r = .30$ to $.49$ or $r = -.30$ to $-.49$
- a large correlation/strong relationship $r = .50$ to 1.00 or $r = -.50$ to -1.00.

Cohen's (1988) guidelines were also used to determine the relative magnitude of the differences between group means (effect size or strength of association) via the eta-squared (η^2) statistic, which ranges from .00 to 1.00. An $\eta^2 = .01$ indicates a small effect, $\eta^2 = .06$ indicates a moderate effect and $\eta^2 = .14$ indicates a large effect.

Most of the general (descriptive) results, which provide an overview of the handler-dog partnership, are presented in the next chapter. The results from the travel study appear in Chapter 8, followed by bivariate and multivariate analyses of factors associated with the success or failure of the match in Chapter 9. Chapter 10 examines relationship patterns and trends, reported in Chapters 7 and 9, which can be seen between handlers and their first and subsequent dogs. A general discussion of all these results, including the results of the focus group (Chapter 4), will be presented in the final chapter of this thesis (Chapter 11).

7
The Survey
Results 1 - Overview of the Handler-Dog Partnership

Preliminary findings from the survey were presented and published at the Institute of Veterinary, Animal and Biomedical Sciences Research Colloquium (Lloyd, Stafford, La Grow, & Budge, 2001), the International Federation of Guide Dog Schools for the Blind's (IFGDSB) Guide Dog Seminar (Lloyd, 2002) and at the 11th International Mobility Conference (Lloyd, La Grow, Budge, & Stafford, 2003). A copy of the latter can be found in Appendix D, and a miniature copy of a poster (Lloyd, 2003) to promote the RNZFB's GDS' 30th Anniversary can be found on the final page of this thesis (p.260).

This chapter will provide an overview of the handler-dog partnership from start to finish by describing the data collected in terms of variables and combinations of variables. Firstly, the sample will be described demographically followed by descriptions of the data distributions, measures of central tendency and dispersion, correlations and scale development.

7.1 Sample Description

Participants (N = 50)

Fifty people were selected to participate in the survey, as described in the previous chapter, section 6.1. Of these, just over half was female (52%). The majority (82%) identified themselves ethnically as Pakeha (New Zealanders of European descent), and 14% as Maori (indigenous people of Aotearoa/New Zealand). Of the remaining two participants, one (2%) was a Pacific Islander and the other was Australian. All were members of the RNZFB, with an affiliation from 3 to 74 years, and an average membership of 26.7 years. Participants were distributed across all geographic regions of New Zealand. These characteristics approximated the RNZFB's GDS' estimation of its client base (G. Welch, Administration Services, RNZFB's GDS, personal communication, February 2002).

Nomenclature

The 50 participants had used 118 guide dogs amongst them. Nearly two thirds (64%) of participants had used between two and eight dogs, and the average number of dogs used was 2.4. To differentiate between the human and canine elements of the 118 handler-

Table 7.1. The handlers' (N = 118) socio-demographic data when each dog was received and in the sample overall (O/all)

Handler Socio-demographic Data	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
Participants* currently using a dog (%)	28.0*	26.0*	14.0*	4.0*	0*	2.0*	0*	4.0*	78.0*
Age when dog was received									
years - range	17-75	21-73	24-62	32-55	37-56	47-61	52-63	58-66	17-75
years (M)	37.64	39.41	42.00	42.50	47.20	53.50	57.50	62.00	40.70
years (SD)	15.46	11.91	11.48	6.97	7.53	6.25	7.78	5.66	13.60
Marital status (%)									
Married	38.0	37.5	53.3	37.5	40.0	50.0	50.0	50.0	40.7
Single	36.0	31.3	6.7	12.5	20.0	25.0	50.0	50.0	28.8
Widowed	12.0	3.1	0	0	0	0	0	0	5.9
Partner	10.0	21.9	33.3	25.0	20.0	0	0	0	16.9
Separated/divorced	4.0	6.3	6.7	25.0	20.0	25.0	0	0	7.6
Highest education (%)									
Primary	2.0	0	0	0	0	0	0	0	.9
Secondary	62.0	46.9	53.3	37.5	60.0	50.0	50.0	50.0	54.2
Tertiary	36.0	53.1	46.7	62.5	40.0	50.0	50.0	50.0	44.9
Employment (%)									
Workforce (full/part-time)	50.0	67.7	66.6	87.5	100	75.0	50.0	50.0	62.4
Student (full or part-time)	14.0	18.7	13.4	0	0	0	50.0	0	13.6
Unpaid or unemployed	36.0	15.6	20	12.5	0	25.0	0	5.0	24.6
Housing (%)									
Apartment/flat	20.0	15.6	6.7	25.0	0	0	0	0	15.3
House	76.0	81.3	93.3	75.0	100	100	100	100	82.2
Institution	4.0	0	0	0	0	0	0	0	1.7
Other	0	2.0	0	0	0	0	0	0	.9
Rented	36.0	28.1	6.7	25.0	0	0	0	0	24.6
Owned	58.0	68.8	93.3	75.0	100	100	100	100	71.2
Live with parents	6.0	3.1	0	0	0	0	0	0	4.2
Moved house within 2 years of receiving dog (%)	26.0	34.4	20.0	62.5	40.0	0	0	0	28.8
Family dynamics									
Adults in household (M)	2.32	1.75	2.00	1.63	1.60	1.50	1.50	1.50	1.99
Adults in household (SD)	2.78	.62	.54	.52	.55	.58	.71	.71	1.87
Children in household (M)	.64	.47	.93	1.13	1.00	.75	0	0	0.66
Children in household (SD)	1.12	.92	1.22	1.25	1.41	1.50	N/a	N/a	1.10
Households with pets (%)	56.0	53.1	73.3	75.0	80.0	50.0	50.0	50.0	59.3
Households - pet dogs (%)	24.0	25.0	46.7	50.0	60.0	25.0	50.0	50.0	31.4
Households - pet cats (%)	46.0	40.6	53.3	50.0	40.0	50.0	50.0	50.0	45.8
Households - other pets (%)	22.0	21.9	13.3	12.5	20.0	25.0	50.0	50.0	21.3

No missing responses.
* Pertains to the participants at the time of the interview (N = 50) and not total number of handlers (N = 118).
'Children' are defined as <18 years.

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dog teams in the sample, the term 'handler' (N = 118) or 'dog' (N = 118) will be used where appropriate; the term 'participant' will be used when referring in general to the 50 individuals involved in this study.

Independence of errors

The participants who had used more than one dog were serially represented in the database for each dog used. As this may have led to non-independent observations caused by the effects of potential clustering, an 'intra-class correlation coefficient' (ICC) was calculated to test for 'between subjects' effects for the outcome of matching success. The resulting value, which is described further in Chapter 9, sections 9.1 and 9.2, was small and negative, which according to Snedechor and Cochran (1989) argues against there being any meaningful positive correlation between measurements within the same handler. Furthermore, this value is strong evidence in support of a decision not to make any adjustments and to treat all 118 dogs as if they were effectively independent, that is, as if different people scored them.

Handler-dog teams (N = 118)

Demographic data for handlers and dogs when each dog was received and as an average of the 118 handler-dog teams are shown in Tables 7.1 and 7.2 respectively. At the time of the interview, 78% of participants were currently using a dog. Specifically, 28% were using their first dogs (Dog 1), 26% their second (Dog 2), 14% their third (Dog 3), 4% their fourth (Dog 4), 2% a sixth (Dog 6) and 4% their eighth (Dog 8). Age ranged from 21 to 86 years, with a mean of 50.3 years (SD = 15.61). The reasons why more than a fifth of participants (22%) were not currently using a dog will be discussed later in this chapter. Participants were between the ages of 17 and 75 years when they received their first guide dog and were on average 37.6 years old (SD = 15.46).

Of the 118 dogs in the sample, 66.9% (n = 79) had been used before the study was conducted and 30.1% (n = 39) were in current use (Table 7.2). Dogs that had been used previously (retrospectively) worked from as little as one month to as long as 13 years (156 months), with a mean of 4.7 years (55.9 months). Dogs in current use had worked from 2 months to 11 years (132 months), with a mean of 4.3 years (51.7 months). Overall, the 118 dogs worked over a range of 1 month to 13 years (156 months), with an average working life of 4.5 years (54.5 months).

Table 7.2. Canine (N = 118) demographic data for each dog and in the sample overall (O/all)

Canine Demographic Data	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
All dogs (n)	50	32	15	8	5	4	2	2	118
Months worked - range	1-138	1-144	4-132	2-156	3-96	2-24	9-24	42-72	1-156
Months worked (M)	70.22	46.56	48.33	39.63	37.80	12.00	16.50	57.00	54.47
Months worked (SD)	41.30	41.53	44.73	57.56	40.49	11.66	10.61	21.21	43.76
Current dogs (n)	14	13	7	2	0	1	0	2	39
Months worked - range	14-132	9-120	4-106	2-26	N/a	N/a	N/a	42-72	2-132
Months worked (M)	71.50	50.23	28.43	14.00	N/a	20.00	N/a	57.00	51.67
Months worked (SD)	42.98	32.90	35.76	16.97	N/a	N/a	N/a	21.21	39.28
Previous dogs (n)	36	19	8	6	5	3	2	0	79
Months worked - range	1-138	1-144	6-132	3-156	3-96	2-24	9-24	N/a	1-156
Months worked (M)	69.72	44.05	65.75	48.17	37.80	9.33	16.50	N/a	55.85
Months worked (SD)	41.24	47.25	46.51	65.05	40.49	12.70	10.61	N/a	45.98
All dogs - Breed (%)									
Labrador retriever	62.0	59.4	40.0	62.5	80.0	50.0	50.0	0	57.6
Golden retriever (ret.)	4.0	6.3	6.7	0	0	0	0	0	4.3
Lab ret. x Golden ret.	14.0	6.3	20.0	12.5	0	0	0	0	11.0
German shepherd dog	12.0	12.5	13.3	0	0	0	0	50.0	11.0
Exotic/other	8.0	15.6	20.0	25.0	20.0	50.0	50.0	50.0	16.1
All dogs - Sex (%)									
Male castrate*	34.0	43.7*	33.3	37.5	60.0	25.0	0	50.0	37.3*
Female spayed	66.0	56.3	66.7	62.5	40.0	75.0	100	50.0	62.7
All dogs - Colour (%)									
Yellow	46.0	46.9	26.7	12.5	20.0	50.0	0	0	39.0
Black	38.0	28.1	46.7	50.0	80.0	0	0	0	36.5
Chocolate	2.0	6.3	6.7	12.5	0	25.0	50.0	0	5.9
Black &Tan	14.0	12.5	6.7	12.5	0	0	50.0	50.0	12.7
Other	0	6.2	13.3	12.5	0	25.0	0	50.0	5.9

No missing responses.
*One dog not neutered (0.9%).
N/a = not applicable.

There were nearly twice as many bitches as male dogs in the sample, and both sexes were neutered except for one male[1]. The Labrador retriever was the most commonly used breed (57.6%), 11% were German shepherd dogs, 11% were Labrador/Golden retrievers (first crosses), and 4.3% were Golden retrievers. Other breeds, including mix-breeds and 'exotics' like Standard poodles, Boxers, Giant schnauzers, and Flat and Curly-coat retrievers comprised 16.1% of the sample. Coat colour was predominately yellow (39%) or black (36.5%). These characteristics approximated the RNZFB's GDS' estimation of its working dog database, with the exception of the ratio of bitches to males varying from 2:2 to 3:2 (G. Welch, Administration Services, RNZFB's GDS, personal communication, February 2002).

7.2 Country where Dog was Acquired, Dog Ownership and Team Graduation

The country where handlers obtained and trained with their dogs, whether handlers legally owned their dogs, and whether they had graduated as a working team is shown in Table 7.3. Most of the 118 handler-dog teams were matched and trained in New Zealand (92.3%), but some came from Australia (3.4%) or South Africa (3.4%), and one team (.9%) from the United Kingdom. Just under one tenth of the dogs (9.3%) were privately owned pets that had been trained by the RNZFB's GDS (3.4%) or by the owner-handlers (5.9%) to certifiable standards.

All but five of the 118 handler-dog teams in the sample graduated as qualified guide dog teams (95.8%). The reasons for not graduating included: a dog withdrawn for protective aggressive tendency, a handler's inability to control an excitable dog, a dog in poor health, a dog removed for ill-defined reasons, and an 'owner-trainer' not completing training with an overly sensitive/anxious dog. With the exception of the latter, the decision not to graduate a team was made by the guide dog instructor. The teams that had not graduated were included in the analysis, as the decision to match these teams had already been made.

In addition, four handler-dog teams (3.4%) did not officially graduate for the following reasons: the RNZFB's GDS did not recognise owner-trained dogs before 1988 (n = 2), one handler was matched temporarily with an older dog until a replacement became

[1] Permission has been granted from the participant who used this dog to identify him in this manner.

Table 7.3. The country where handlers (N = 118) obtained and trained with their dogs, ownership status (whether handlers legally owned dogs), and graduation status (whether the trainee handler-dog teams graduated as working teams) for each dog and in the sample overall (O/all)

Origin, Ownership and Graduation Status	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
Country of dog's origin (%)									
New Zealand	94.0	90.7	86.6	100	100	75.0	100	100	92.3
Australia	0	6.2	6.7	0	0	25.0	0	0	3.4
United Kingdom	2.0	0	0	0	0	0	0	0	.9
South Africa	4.0	3.1	6.7	0	0	0	0	0	3.4
Ownership status (%)									
Non-owners	92.0	100	86.7	87.5	80.0	75.0	50.0	50.0	90.7
Owners	8.0	0	13.3	12.5	20.0	25.0	50.0	50.0	9.3
Graduation status (%)									
Graduated	98.0	93.7	100	100	100	50.0	100	100	95.8
Did not graduate	2.0	6.3	0	0	0	50.0	0	0	4.2

No missing responses.

Table 7.4. The handlers' (N = 118) visual status when using each dog and in the sample overall (O/all)

Visual Status	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
Vision loss (%)									
Total	64.0	68.8	80.0	100	100	100	100	100	73.8
Partial	36.0	31.2	20.0	0	0	0	0	0	26.2
Partial vision (%)									
Central field loss	16.0	15.6	13.3	0	0	0	0	0	12.7
Peripheral field loss	16.0	9.4	6.7	0	0	0	0	0	10.2
Non-specific	4.0	6.3	0	0	0	0	0	0	3.4
Useful residual vision (%)									
None	60.0	62.5	73.3	100	100	100	100	100	70.3
A little	30.0	34.4	26.7	0	0	0	0	0	24.6
A lot	10.0	3.1	0	0	0	0	0	0	5.1
Deterioration in vision (%)									
Yes	83.3	70.2	66.5	N/a	N/a	N/a	N/a	N/a	76.4
No	16.7	29.8	33.5	N/a	N/a	N/a	N/a	N/a	23.6

No missing responses.
N/a = not applicable.

available, and one handler who trained his or her own dog to the RNZFB's GDS' standards declined to graduate to avoid being bound by some of the organisation's regulations[2]. These four teams were included in this analysis as graduates.

7.3 Visual Status

Twenty two percent of the 50 participants had a congenital visual disability. The onset of vision loss ranged from birth to 58 years (M = 14.82, SD = 14.48). Vision loss was sudden for one third (n = 13) of the 39 participants with acquired (adventitious) vision loss, and gradual for the remaining two thirds (n = 26). Sight impairment or blindness in the sample was due to a variety of disorders. The most frequently named disorders, which are explained in the Glossary of Terms, were progressive retinal disorders (34%) including retinitis pigmentosa, age-related macular degeneration (ARMD) and retrolental fibroplasia. Thirty two percent of participants had congenital anomalies including glaucoma, cataracts, optic neuritis and optic atrophy (Leber's disease). Twenty-four percent of participants lost their vision through accidental trauma and one tenth from other causes such as cerebral haemorrhage or brain tumour.

Visual function varied within the sample and within subjects as they progressively used dogs (Table 7.4). When handlers received their first dogs, nearly two thirds (64%) had total vision loss, including those with light perception and projection. The remaining 36% had partial vision loss, and of them 16% had a central field loss, 16% had a peripheral field loss and 4% described a non-specific loss. At this time, 60% of handlers stated that they had no residual vision useful for mobility, 30% had a little, and one tenth professed to have a lot. As an average of the overall sample, total vision loss increased and useful residual vision decreased by around 10% from the time the first dogs were used.

Most of the handlers (83.3%) with partial vision at the time of using their first dogs said that their vision deteriorated over the time they used these dogs. Deterioration in vision continued to occur for most of those using their second (70.2%) and third (66.5%) dogs,

[2] Since this data was collected, the RNZFB's GDS have reworded their policy on privately owned dogs and this dog has now officially graduated. Permission has been granted from this participant to potentially identify him or her in this manner.

Table 7.5. The participants' (N = 50) expectations of guide dog usage concerning the categories: travel, social interactions, companionship and other

Expectations of Guide Dog Usage	%
Travel	
Improve O&M in general - avoid obstacles; find destinations; deal with traffic etc.*	80.0
Increase independence - less reliant on others; freedom**	62.0
Safer travel***	40.0
Easier/less tiring - don't have to concentrate as dog does the work	34.0
Expand horizons/go further	32.0
More enjoyable travel - less stressful; less frustrating	32.0
Increased confidence regarding travel abilities	28.0
Ability to dispense with the long cane	28.0
Faster travel	26.0
Travel at night time in the dark	6.0
Dog provides stability when walking	4.0
Social interactions	
Improve social interactions/function in general*	78.0
Dog as ice-breaker - removes social barriers as handler appears approachable***	62.0
Dog as social-lubricant - stimulates conversation	62.0
Not considered important**	22.0
Companionship	
Provide companionship/friendship*	90.0
Share experiences and confidences - when and when not travelling**	64.0
Feelings of loneliness abating	20.0
Not considered important***	10.0
Other	
Not considered important*	56.0
Increase in self-confidence and/or self-esteem**	16.0
Watchdog/protection ***	12.0
Something to care for/nurture	12.0
Increase in self-motivation	10.0
Look more dignified/look cool and trendy - appear more 'normal'	8.0
Increase fitness/exercise	6.0
Look more obviously blind	4.0
Easy to look after dog	4.0
Boost revenue when collecting money	2.0
Help to get over the death of a loved one	2.0
Brand new life	2.0

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for that category*; second most often cited**; third most often cited***.

after which no partial vision remained. Loss of vision was gradual in all cases, and all the dogs coped with the handlers' change in visual status, except one dog that did not manage the responsibility of having to make more travel-related decisions.

7.4 Previous Pets

Of the 50 participants, 74% claimed to have an affinity with animals. Ninety percent of participants had previously owned pets, with the majority (72%) having been responsible for looking after these pets. The average age when participants obtained their first pets was just over five years. Of those owning pets, 71.1% (n = 32) acquired their pets at age six or less, 22.2% (n = 10) were between six and 12, and 6.7% (n = 3) were older than 13 years. Dogs were reported to be the most important species of pet for 45.2% (n = 19) of the participants (n = 42) who owned a pet during childhood (less than 12 years old), while 33.3% (n = 14) said cats, 9.5% (n = 4) said birds, 4.8% (n = 2) said horses, and the remaining 7.2% (n = 3) said a rabbit, a fish and a sheep.

7.5 Applying for a Guide Dog

Of the 50 participants, only 60% had been aware that, as members of the RNZFB, they were entitled to apply for a guide dog. Of the 40% who were unaware, around half thought that they had too much vision to be eligible. Participants got the idea to apply for a dog through recommendations from the RNZFB's O&M staff (24%) and GDS staff (20%), followed evenly by the participants themselves (16%), their friends and family (16%), and other guide dog handlers (16%). To a lesser extent (8%), the media also promoted the use of guide dogs. The majority of participants (78%) applied for dogs to please themselves, 22% to please both them and others, and one person (2%) did so to please only another.

7.6 Expectations

7.6.1 Expectations of dog usage

The participants' (N = 50) expectations of what a guide dog might do in terms of (a) travel, (b) social interactions, (c) companionship and (d) other are shown in Table 7.5. The responses are ranked in decreasing order of frequency. For example, when asked to state what a hypothetical 'ideal' dog could do for the handler in terms of travel, the most frequent response, from 80% of participants, was "improving O&M skills in general", which included avoiding obstacles, dealing with traffic, and finding destinations without

Table 7.6. The participants' (N = 50) expectations of guide dog usage concerning canine behavioural and physical characteristics

Expectations of Guide Dog Usage	%
Behavioural characteristics	
Good socially; personality; friendly*	88.0
Good work rate (capacity to work) - initiative; willingness; consistency**	82.0
Good at specific guiding tasks - traffic; steps; obstacle avoidance; buses***	74.0
Appropriate speed; speed control; tension (no pulling)	32.0
Acceptable (no or low) level of distraction (dog; cats; people; food; birds)	28.0
Good coping skills - adaptable to environment; no or low stress; anxiety	22.0
Good recall; no escapism	16.0
No or very low scavenging	14.0
Suitable toileting habits - not toileting when working; no substrate avoidance	14.0
Not be overly sensitive to voice or physical correction	12.0
Good office behaviour	12.0
Good with children	6.0
No aggressive tendencies to other animals; people; pets	6.0
Barking desirable - alerts to someone at door; protection	4.0
Must not be coprophagous (i.e. no ingestion of dung)	4.0
Not be a fussy eater	2.0
Chase unwelcome cats away	2.0
Physical characteristics	
Breed* (major preference for Labrador retriever)	64.0
Size (major preference for smaller stature to fit in confined spaces)**	56.0
Coat - little shedding; easy care; length (major preference for short hair)	52.0
Sex (major preference for bitches, as scent mark/roam/fight less; smaller; less strong)	36.0
Colour (even preference for yellow and black coats)	30.0
Robust health - skin; skeleton; organ systems***	28.0
Appropriate strength - mostly no pulling; able to help up hills	16.0
Good looking	14.0
Tactility - pleasant to touch coat; ears	10.0
Suitable gait; helps with stability	4.0
Not overweight	4.0
No expectations; preferences	4.0
More mature dog	2.0
Docked tail desirable	2.0
No strong odour	2.0

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for that category*; second most often cited**; third most often cited***.

getting lost. The most frequent responses for social interactions, companionship and other respectively were "improving social interactions/function in general" (78%), "provision of companionship and friendship" (90%) and 56% did not feel any other expectations were important.

Participants were also asked to rate their three most important expectations within each of the four categories, denoted in Table 7.5 with one, two or three asterisks in decreasing order of importance. Using the category of travel to illustrate, "improving O&M skills in general"* was also cited as the most important expectation for most participants, followed by "increased independence"** and "safer travel"*** respectively.

The results of being asked to identify what they considered to be the most important of the four categories reveal that the majority of participants (70%) considered travel to be most important, 14% ranked travel first equal with companionship, 12% ranked companionship first and 4% felt that travel and social interactions were of first equal importance. No participants ranked social interactions first alone. However, one tenth of participants volunteered the information that companionship and social interactions became more important as the dog neared old age with mobility consequently lessening in significance.

7.6.2 Expectations of dog characteristics

The participants' (N = 50) expectations of what behavioural and physical characteristics their 'ideal' guide dog would have are presented in Table 7.6, in decreasing order of frequency. The results show that the most frequently desired behaviour was for the dog to possess a "good personality and be sociable" (88%), followed by having a "good capacity to work" (82%) and "specific guiding skills" (74%). These responses were also cited as being of most importance in that order.

The "breed" of the dog was the most frequently desired canine physical characteristic for the majority (64%) of participants, with the Labrador retriever the favoured breed. This was followed by a preference for dogs of a "size" (56%) that could easily fit into confined spaces such as under a desk at work, in the footwell of a car or on public transport, and an easy-care "coat" (52%). "Breed" and "size", respectively, were also

Table 7.7. The time handlers (n = 111) waited for a dog, and team training issues for each dog and in the sample overall (O/all)

Wait Time and Training	Dog 1 (n=49)	Dog 2 (n=32)	Dog 3 (n=14)	Dog 4 (n=7)	Dog 5 (n=4)	Dog 6 (n=3)	Dog 7 (n=1)	Dog 8 (n=1)	O/all (n=111)
Time on waiting list									
Months waited - range	0-72	0-9	0-9	0-6	0-6	0-6	N/a	N/a	0-72
Months waited (*M*)	10.57	2.50	2.57	1.57	3.25	2.00	0	4.00	6.02
Months waited (*SD*)	13.10	2.77	3.03	2.30	2.75	3.46	N/a	N/a	9.78
Satisfaction re. wait (%)									
Too long	12.2	9.4	21.4	0	0	0	0	0	10.8
Too short	2.0	6.3	7.1	0	0	0	0	0	3.6
About right	85.7	84.4	71.4	100	100	100	100	100	85.6
Training venue (%)									
Offered choice	18.4	31.3	57.1	42.9	25.0	66.7	100	100	31.5
Domiciliary	30.6	46.9	71.4	57.1	75.0	66.7	0	100	45.0
Residential	57.1	43.8	28.6	28.6	25.0	33.3	100	0	45.9
Centre-based	2.0	9.4	0	0	0	0	0	0	3.6
Combination	10.2	0	0	14.3	0	0	0	0	5.4
Satisfaction re. training*									
(*M*)	7.74	7.56	8.07	7.86	6.75	6.67	10.00	10.00	7.71
(*SD*)	2.69	2.23	1.77	2.41	3.59	4.93	0	0	2.50
Relations with instructor*									
(*M*)	8.23	8.13	8.21	9.00	7.20	6.67	9.50	10.00	8.22
(*SD*)	2.29	1.88	1.81	.76	3.56	4.93	.71	0	2.17

No missing responses.

*Scales measured on a 1 to 10 scale, with 10 = greater satisfaction regarding training and a better relationship with the instructor where appropriate.

the most often cited as being of the greatest importance, with a dog in "robust health" third. However, although health was considered important, many participants mentioned that it was not expected that dogs in poor health would be matched.

Almost all of the participants (92%) ranked behaviour as being more important than physical characteristics (including health), 6% ranked physical first and one person thought they were of equal importance. The three participants that ranked physical first had experienced at least one dog with marked health problems. How well expectations were met for each of the 118 dogs will be assessed later in this chapter.

It is noteworthy that most of the expectations concerning behavioural and physical characteristics pertain to when the dog is and/or is not working. This overlap can also be seen in Table 7.5, where despite being asked about companionship discretely from travel, 64% of participants said that sharing experiences and/or confidences related to travelling with the dog as well as when socialising or relaxing at home together. These categories, as they concern work and/or non-work related issues, will be distinguished later in this chapter when dog ratings and the outcome of the handler-dog partnerships are reported.

7.7 Waiting for a Dog

The time spent on the waiting list for a dog and issues that pertain to the training of the handler-dog team (N = 118) are presented Table 7.7. The seven dogs in the sample that were trained by their owners have been excluded from this analysis. The four dogs in the sample that were not owned but were trained by the RNZFB's GDS have been included, as the time spent waiting to be assessed for training and other training issues are comparable to the RNZFB owned dogs.

Overall, handlers (n = 111) waited 6-months for a guide dog (SD = 9.78). Waiting times were longest for first dogs (M = 10.57 months, SD = 13.10), and substantially less for 'replacement' dogs (M = 2.42 months, SD = 2.73). At the time of the interview, handlers who were currently using their first dogs (n = 14) had waited on average nearly one year for them (M = 11.43 months, SD =18.64), while handlers who were currently using their most recent replacement dog (n = 24) waited around 2.3 months (SD = 2.60). These results are indicative of the RNZFB's GDS' practice of matching applicants who

require replacement dogs before supplying dogs to new applicants, as 'replacement applicants' have become accustomed to dog assisted mobility and therefore have priority, as discussed in Chapter 3, section 3.4.5.

The large majority of the handlers (85.6%) felt that the time spent waiting was satisfactory whether for first or subsequent dogs. Although some of the waiting times ran into years, most of the handlers concerned felt that this time-frame was acceptable as often the delay in obtaining a dog was due to the handlers' situation such as going overseas for a while, or changes in personal circumstances. Three of the four handlers who thought they had not waited long enough professed that they had not yet got over the loss of their previous dogs. However, many people who are on the waiting list for a replacement dog continue to use their old one until the replacement arrives.

7.8 Training the Handler-dog Team

Nearly a third (31.5%) of the 111 handlers who did not train their own dogs were offered a choice of training locations (see Chapter 3, section 3.4.6 for an explanation of the options). Most (91%) of the 111 handler-dog teams were trained in equal numbers either by residential (n = 51) or domiciliary (n = 50) training (Table 7.7). If given the choice of training venue, around one half of the 50 participants said they would prefer domiciliary training, one quarter opted for residential training, and one fifth chose a combination of these. Centre-based training was the least favourite choice (4%), however it is a relatively new option that many of the participants may not have been familiar with (S. Jewitt, Guide Dog Instructor, personal communication, October 2002).

Domiciliary training was a popular choice, as it was convenient and less disruptive to people's routines. It was also deemed a more efficient way of training as it was tailored to individual needs, and people could train over familiar routes and environments. Other reasons for preferring domiciliary training included a dislike for institutions, as a legacy from being institutionalised in the past and/or being at the "mercy" of others. Those who opted for residential training did so mainly because they could focus on training, as they would not have the responsibilities associated with home, and they could share their experiences and problems with peers. For some people, the challenge and the fun of staying in a different town was an added bonus.

Table 7.8. A description of how well the handlers' ($N = 118$) expectations were met concerning the dog usage categories: travel, social interactions, companionship and other, and dog behavioural and physical characteristics for each dog and in the sample overall (O/all)

Description of Expectations	Dog 1 (*n*=50)	Dog 2 (*n*=32)	Dog 3 (*n*=15)	Dog 4 (*n*=8)	Dog 5 (*n*=5)	Dog 6 (*n*=4)	Dog 7 (*n*=2)	Dog 8 (*n*=2)	O/all (*N*=118)
Travel *									
(M)	3.42	2.84	3.27	2.63	2.00	2.75	3.50	4.00	3.12
(SD)	.97	1.14	.96	1.19	1.41	.50	.71	.00	1.08
Exceeded (%)	68.0	37.5	53.3	25.0	20.0	0	50.0	100	50.8
Met (%)	14.0	28.1	26.7	37.5	20.0	75.0	50.0	0	23.7
Somewhat met (%)	10.0	15.6	13.3	12.5	0	25.0	0	0	11.9
Not met (%)	8.0	18.8	6.7	25.0	60.0	0	0	0	13.6
Social interactions*									
(M)	3.54	2.91	3.13	3.13	2.20	2.75	3.00	3.50	3.20
(SD)	.65	1.12	.92	.64	1.10	.50	.00	.71	.90
Exceeded (%)	60.0	37.5	40.0	25.0	0	0	0	50.0	43.2
Met (%)	36.0	34.4	40.0	62.5	60.0	75.0	100	50.0	41.5
Somewhat met (%)	2.0	9.4	13.3	12.5	0	25.0	0	0	6.8
Not met (%)	2.0	18.8	6.7	0	40.0	0	0	0	8.5
Companionship*									
(M)	3.67	3.03	3.27	3.25	2.40	2.25	3.50	4.00	3.31
(SD)	.52	1.00	.80	.46	1.34	1.50	.71	.00	.86
Exceeded (%)	68.0	37.5	46.7	25.0	20.0	25.0	50.0	100	50.8
Met (%)	30.0	40.6	33.3	75.0	40.0	25.0	50.0	0	36.4
Somewhat met (%)	2.0	9.4	20.0	0	0	0	0	0	5.9
Not met (%)	0	12.5	0	0	40.0	50.0	0	0	6.8
Other*									
(M)	3.26	2.88	3.13	3.00	3.00	3.00	3.00	3.00	3.09
(SD)	.53	.61	.52	.00	.00	.00	.00	.00	.52
Exceeded (%)	30.0	6.3	6.7	0	0	0	0	0	16.9
Met (%)	66.0	81.3	73.3	100	100	100	100	100	77.1
Somewhat met (%)	4.0	6.3	20.0	0	0	0	0	0	4.2
Not met (%)	0	6.3	0	0	0	0	0	0	1.7
Behavioural*									
(M)	3.08	2.91	2.87	2.63	2.00	2.00	3.50	4.00	2.92
(SD)	.99	1.20	.92	1.06	1.41	.82	.71	.00	1.08
Exceeded (%)	44.0	46.9	26.7	25.0	20.0	0	50.0	100	39.8
Met (%)	28.0	15.6	40.0	25.0	20.0	25.0	50.0	0	25.4
Somewhat met (%)	20.0	18.8	26.7	37.5	0	50.0	0	0	21.2
Not met (%)	8.0	18.8	6.7	12.5	60.0	25.0	0	0	13.6
Physical*									
(M)	3.22	2.81	3.00	2.50	2.40	2.00	3.00	4.00	2.97
(SD)	.86	1.10	.76	1.07	.89	1.41	.00	.00	.98
Exceeded (%)	46.0	34.4	26.7	25.0	0	25.0	0	100	36.4
Met (%)	34.0	28.1	46.7	12.5	60.0	0	100	0	33.1
Somewhat met (%)	16.0	21.9	26.7	50.0	20.0	25.0	0	0	21.2
Not met (%)	4.0	15.6	0	12.5	20.0	50.0	0	0	9.3

No missing responses.

*Scales measured on a 1 to 4 scale with 4 = greater satisfaction.

Facing p. 100

The most common disadvantage of residential and centre-based training was that a lot of time was spent waiting, as there were several people being trained simultaneously. Many participants suggested that residential training was appropriate when being trained with a first dog, but that a short domiciliary 'refresher' course was adequate for subsequent dogs. Those who said they would prefer a combination of training venues felt they would get the best of all methods.

Overall, satisfaction with the amount and quality of training was rated highly, with a mean score of 7.71 (*SD* = 2.50) from a possible score of 10. The relationship handlers had with their guide dog instructors also rated highly on the same scale, with an overall mean of 8.22 (*SD* = 2.17).

7.9 Pre-allocation of Dog to Handler

As described in Chapter 3, section 3.4.6, a dog is pre-allocated (i.e. given to its new handler for a time before team training commences) to allow familiarity, establish a routine and facilitate emotional bonding. The majority (90%) of the 50 participants thought that pre-allocation was useful, while one tenth felt that this was redundant if the team was well matched. Of the participants in favour, 37.8% (n = 17) felt that these goals could be achieved in one week, 42.2% (n = 19) considered two weeks to be adequate, and one fifth (n = 9) said a month or more was necessary as training would be wasted if the bond was not there.

Almost half the 50 participants said it was frustrating if the pre-allocation period was too long, as the dogs could not be used as a mobility aid before training commenced, even for experienced handlers. Further comments included that the RNZFB's GDS should permit the dogs to be allowed off the lead (free-run) during pre-allocation, as this form of play facilitated bonding, and that the RNZFB's GDS ensure family members followed the rules on minimal interaction with the dog to avoid the dog bonding inappropriately with these members of the family. A factor that inhibited bonding for some during pre-allocation was if an old dog was taken away for rehoming at the same time the new dog arrived. Aspects concerning the end of the partnership will be covered more fully later in this chapter.

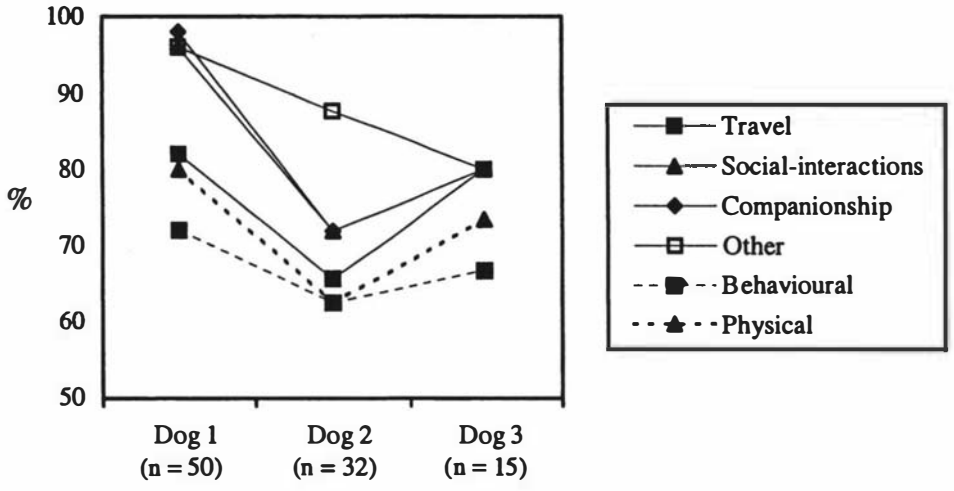

Figure 7.1. The percent of handlers (N = 97) whose expectations were met or exceeded with their first, second and third dogs.

Table 7.9. Correlations between how well the handlers' (N = 118) expectations of guide dog use were met and the items comprising the Fulfilment of Expectations scale (1 to 4 scale with 4 = greater satisfaction)

Item	Variable (measure)	*M*	*SD*	1	2	3	4	5	6
1	Travel	3.12	1.08	-					
2	Social interactions	3.20	.90	.61**	-				
3	Companionship	3.31	.86	.64**	.69**	-			
4	Other	3.09	.52	.40**	.38**	.41**	-		
5	Dog behavioural	2.92	1.08	.78**	.59**	.65**	.39**	-	
6	Dog physical	2.97	.98	.43**	.38**	.44**	.16	.44**	-
	Total Score	18.60	4.21	.87**	.80**	.83**	.53**	.87**	.64**

** $p < .01$
N/a = not applicable.

Table 7.10. Component matrix of the one factor solution for the Fulfilment of Expectations scale

Item	Variable (measure)	Component 1
1	Travel	.86
5	Dog behavioural	.86
3	Companionship	.85
2	Social interactions	.81
6	Dog physical	.60
4	Other	.57
	% of variance explained	59%

Facing p. 101

7.10 The Outcome of Expectations of Dog Usage and Dog Characteristics

The outcome of expectations concerning the categories travel, social interactions, companionship and other (Table 7.5), and dog behavioural and physical characteristics (Table 7.6) were assessed by the delivery of a Fulfilment of Expectations Scale (FES). The handlers ($N = 118$) were asked to state, for each category, if their expectations were not met, somewhat met, met[3] or exceeded for each of their dogs, and a score of 1 (not met) to 4 (exceeded) was assigned accordingly. The large majority of handlers had their expectations exceeded or met in every category (Table 7.8).

Notes on trends between dogs

Table 7.8 also demonstrates trends between the first to the eighth dogs. However, as the first, second and third dogs make up 82.2% ($n = 97$) of the 118 dogs in the sample, only the trends between these dogs will be considered. These trends are illustrated in Figure 7.1, which shows that the percent of handlers whose expectations were met or exceeded were highest for first dogs and lowest for second dogs in all categories, except other. Ergo, the inverse relationship is also true in that expectations that were not met or somewhat met were lowest for first dogs and highest for second. Similar trends that indicate 'first dog best - second dog worst' on various outcomes are reported throughout this chapter, and a further investigation of these results will be presented in Chapter 10.

When asked directly if expectations changed between first and subsequent dogs, over two thirds (68%) of the 50 participants said their expectations were lower for their first dogs as they had not known what to expect. Around a quarter (26%) believed that their standards remained constant, while about a fifth (6%) had higher expectations for their first dogs, mainly due to unrealistic media reports of what a guide dog could do.

7.10.1 Development of the Fulfilment of Expectations Scale

Pearson product-moment correlation coefficients (r) were used to describe the strength (size) and the direction of the linear relationship between the items comprising the FES. These multiple bivariate correlations are presented in Table 7.9, along with means and standard deviations of the scale items. The strength of the relationships between the

[3] The participants who felt expectations regarding social interactions (22%), companionship (10%), and other (56%) were unimportant (Table 7.5) agreed to be included in the analyses as having had these expectations 'met'.

items were interpreted using Cohen's (1988) guidelines, as described in Chapter 6, section 6.5. The results show that with the exception of the relationship between 'dog physical' and 'other', all other items correlate significantly at $p < .01$ with each other in a positive direction. The strength of the significant relationships ranged from moderate ($r = .38$) to strong ($r = .78$), that is, with a shared variance of around 14 to 61%, as calculated by the coefficient of determination. Multicollinearity was not a problem, as none of the r-values in the correlation matrix (Table 7.9) exceeded .80 (Katz, 1998).

To ensure the data was reduced as much as possible, a principal components analysis (PCA) was conducted on the six items of the FES. Inspection of the correlation matrix revealed the presence of many coefficients of $r = .30$ and above. The Kaiser-Meyer-Olkin (KMO) value was .85, exceeding the recommended value of at least .60 (Pallant, 2001), and the Bartlett's test of sphericity reached statistical significance at $p < .0005$, thus supporting the factorability of the correlation matrix. PCA revealed the presence of one component with an eigenvalue exceeding 1.00, which explained 59% of the variance. The "simple structure" (a phrase coined by Thurstone in 1947) showed that all the variables loaded strongly (> .40) on this one component. Using Catell's scree test, an inspection of the screeplot revealed a clear break after the first component, backing up the decision to retain only one component. Being single, this extraction solution, which is shown in Table 7.10, does not require rotation. These results support the decision to include all six items in the scale. Hence, a total score for the fulfilment of these expectations ($M = 18.60$, $SD = 4.21$) was calculated by summing the six items (Table 7.9). No outliers were found, but the score was not normally distributed, as the mean was somewhat elevated relative to the possible score range of 6 to 24. This negative skewness is predictable from a sample of guide dog handlers who were mostly happy with their dogs, and as the variable was not being used as an outcome measure, transformations were not warranted.

The FES was tested to ensure item reliability. All the within-scale items correlated with the total score above the acceptable level of .30 (Table 7.9) and the Cronbach's alpha coefficient was .86 indicating that the FES had good content validity and internal consistency (Pallant, 2001). These variables were entered into a logistic regression analysis to assess the relationship between the fulfilment of expectations and the success or failure of the match, the results of which will be presented in Chapter 9.

Table 7.11. The unexpected benefits handlers (N = 118) received from guide dog usage

Unexpected Benefits of Guide Dog Usage	%
Facilitation of social interactions	33.1
To be such a good mobility aid in general - well-trained; trustworthy	22.9
Companionship; friendship; loyalty; sharing experiences	13.6
Exhilarating sense of freedom; independence; expanding horizons	12.7
Increase in self confidence/self esteem; personal and professional growth	11.0
Specific tasks - finding doorways/destinations/overhead obstacles/avoiding puddles/escalators	5.9
Joy and pride in 'ownership'	4.2
Easy care coat/appropriate coat colour (blends with clothing/carpets)	4.2
Non mobility assistance - alert barking to phone or door/retrieving objects	3.4
Be so good together - good fit regarding personality; looks; gait	3.4
Adapt to lifestyle with children	3.4
Ability to travel at night in the dark	2.5
Protection from attackers/burglars	2.5
To match the previous dog in quality (work and bond)	2.5
The experience of using an experienced guide dog	2.5
No scavenging	2.5
Good recall (with body contact); no escapism	1.7
Compact dog (easy to fit in car/under desk/on public transport)	1.7
Public helpful - facilitates travel	1.7
Something to care for and nurture	.9
Mental relaxation when working (more energy on arrival)	.9
Gained fitness	.9
Chased cats from garden	.9

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

7.11 Unexpected Benefits of Dog Usage

Virtually all (96%) of the handlers reported that they had received benefits that they had not expected when using their first guide dogs. Predictably, these unexpected benefits declined as handlers became more experienced and were reported by only a third of those using their second dogs. However, a handler who was currently using his eighth dog said that he was still being pleasantly surprised by what his dog could do for him. The unexpected benefits, which pertain to work and non-work are listed in Table 7.11. The most frequently cited unexpected benefits were related to enhanced levels of social function (33.1%), mobility (23%) and companionship (13.6%). These benefits declined most sharply after handlers had experienced the use of a first dog due to people knowing what to expect through experience.

7.12 Workload

For the purposes of this research, the intensity of a dog's 'workload' was defined in Chapter 3, section 3.4.5, as the *environment* the dog works in plus the *quantity* of the work the dog is expected to perform. Most (83%) of the 118 dogs were required to work in more than one environment. The 17% of dogs that worked in only one environment were either first (11.9%) or second dogs (5.1%). The most common working environment was quiet city/semi-business districts (38.1%), followed by busy cities (25.4%), residential (12.7%), rural (11%) and semi-rural areas (10.2%). The remaining 2.5% of dogs' main working environment were task oriented rather than area based. Tasks included the dogs being comfortable dealing with public transport, shopping malls and getting on and off escalators (moving staircases) and elevators (lifts).

Half of the dogs (49.2%) were required to cope with a medium quantity of work, 39% with a high amount and 11.9% with low. Most of the dogs (75.4%) functioned well with the intensity of their workload, 19.5% did not, 3.4% coped with the amount of work but not the environment, and 1.7% vice-versa. The dogs that were required to work in a single environment were mainly first dogs, and to a lesser extent second dogs. This suggests that it was the more experienced handlers who were travelling more widely, which is discussed further in Chapter 11.

Table 7.12. The good and bad behavioural and physical characteristics handlers (N = 118) received from their dogs

Good Traits	%	Bad Traits	%
Behavioural		Behavioural	
Social inc. home; personality*	83.3	Specific guiding tasks	29.8
Work rate/capacity to work**	75.7	Distractions when working (mostly to dogs)*	28.1
Specific guiding tasks***	70.6	Work rate/capacity to work	27.2
Speed - control/tension/sustainability	28.9	Social inc. home; personality	27.2
Coping	23.0	Scavenging/food oriented salivation**	24.7
Not overly sensitive	17.9	Escapism/poor recall***	23.8
Office behaviour	13.6	Aggressions (mostly to dogs)	23.0
Toileting habits	11.1	Speed - control/tension/sustainability	22.1
No scavenging/food oriented salivation	11.1	No bad	17.9
Good with children	10.2	Coping***	16.2
No escapism/good recall	9.4	Toileting habits	14.5
Good with other pets	6.0	Overly sensitive	14.5
Acceptable distractions	5.1	Office behaviour	6.8
Barking only when appropriate	4.3	Coprophagous	5.1
No good	3.4	Chased cats	5.1
No aggressive tendencies	2.6	Suspicious - people/objects	4.3
Discouraged unwanted cats at home	1.7	Aggressive to other pets	3.4
Retrieved objects	.9	Barking	3.4
Not coprophagous	.9	Will not retrieve objects	.9
		Fussy/expensive eating habits	.9
		Anxious re car travel	.9
Physical		Physical	
Size (mostly compact)*	55.3	No bad	36.6
Breed**	48.5	Health*	27.2
Good-looking***	40.8	Coat - shedding/ high maintenance**	22.1
Sex (mostly female)	32.3	Size (mostly too big)***	16.2
Easy-care coat (mostly short hair)	25.5	Strength - pulling	14.5
Colour - compliment/unlike previous dog	23	Breed	12.8
Tactility - soft coat/ears	12.8	Gait - hard to follow/unstable/veering	4.3
Gait - easy to follow/provide stability	7.7	Not good-looking	4.3
Strength - pulling uphill only	6.8	Sex (mostly male)	2.6
Nothing remarkable/acceptable	6.0	Age - too puppy-like or too mature	2.6
Weight	4.3	Tail not docked - nuisance factor	2.6
Docked tail - no nuisance factor	1.7	Overweight	2.6
		Colour - hair noticeable on clothing/carpets	1.7
		Not tactile - coarse texture of coat/ears	1.7
		Malodorous	1.7

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for that category*; second most often cited**; third most often cited***.

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7.13 Characteristics of Good and Bad Dogs

The handlers' (N = 118) comments on what was good and bad, behaviourally and physically, about their dogs are shown in decreasing order of frequency in Table 7.12. Responses were coded, as far as possible, in keeping with the RNZFB's GDS' Canine Temperamental, Behavioural and Physical Analysis (Appendix B).

The most commonly mentioned good behaviour was related to "social behaviour" (83.3%) including the dog being personable, and well behaved at home and in other social settings, followed by "work rate" (75.7%) and "specific guiding tasks" (70.6%). Handlers also rated the three most important traits within each of the four categories, denoted in Table 7.12 with one, two or three asterisks in decreasing order of importance. For example, concerning good behaviour, "social behaviour" was rated as being of greatest importance, followed by "work rate" and "specific guiding tasks" for most of the handlers.

The bad behaviour most commonly reported concerned "specific guiding tasks" (29.8%) closely followed by "distractions (mainly to other dogs) while working" (28.1%) and "work rate" (27.2%). The three traits most often cited as being of first, second, and third equal importance for that category are "distractions (mainly to other dogs) while working", "scavenging", and poor "coping skills" or "running away" respectively.

Concerning physical characteristics, size matters. Over half of the handlers (55.3%) mentioned that they liked the "size" of their dogs, with most handlers preferring a compact dog as opposed to a large one for the reasons mentioned earlier in this chapter (section 7.6.2). This perspective was also true for some tall handlers, who, in order to use the harness handle effectively require a dog to be of an adequate height, but do not want the dog to be too large in height or length. In addition, a smaller dog was deemed easier to lift, bathe, and be less strong and hence not be able to pull so hard as a more powerfully built dog. "Breed" was the next frequently mentioned desirable physical trait (48.5%), followed by an "attractive" looking dog (40.8%). These three traits were also considered as being the three most important characteristics in this category, in that order.

Over a third of handlers (36.6%) stated that their dogs had no bad physical characteristics. This was followed by 27.2% having experienced dogs with health problems, and troublesome issues regarding the shedding and the care of the dogs' coat (22.1%). "Health" was also rated as being of most importance in that category followed by "coat, and too large in "size".

It is of interest that many handlers seemed embarrassed by, or felt they had to defend, many of their preferences for physical traits, including why they wanted a dog to be good-looking and why tactility was important. These examples are illustrated by the following quotes respectively: "I feel like I live my life in a fish bowl, with everyone watching - so why shouldn't my dog look nice?" and "I miss my old dog's soft, soft ears. I don't like [the new dog's] ears. I don't suppose [the instructor] would find that important as it's not a mobility thing". This finding backs up the quote from the focus group (Chapter 4) concerning the public being insensitive to a person with a visual disability preferring a dog of a certain colour.

7.13.1 Resolution of behavioural problems

Overall, 81.4% of the 118 dogs exhibited behaviours that were considered problematic by their handlers (n = 96). Of these handlers, under one half (45.8%) notified the RNZFB's GDS and received appropriate help. One fifth (20.8%) did not notify the organisation but helped themselves and 14.6% notified the RNZFB's GDS but did not receive help. Around one tenth (9.4%) chose not to notify the organisation and did nothing to help themselves, and for another tenth no help was available as the problem occurred in the very early days of the RNZFB's GDS' existence. The behavioural problems were unresolved for 60.4% of handlers experiencing problematic canine behaviours, somewhat resolved for a quarter (25.7%) and fully resolved for 13.9%.

7.13.2 Resolution of physical problems

Overall, 39% of the 118 dogs were reported by their handlers (n = 46) to have experienced physical problems. Of these, nearly two thirds (63%) of the handlers notified the RNZFB's GDS and received help, 17.4% did not notify the organisation but helped themselves, around one tenth (10.9%) notified the organisation but did not receive help, 4.3% chose not to notify and did nothing to help themselves, and for another 4.3% no help was available as the problem occurred soon after the RNZFB's

Table 7.13. The handlers' most favourite (N = 50) and least favourite (N = 50) dog characteristic

Most Favoured Trait	%	Least Favoured Trait	%
Personality - charisma; idiosyncrasies; loyal	28.0	Personality - excitable; aloof; too sensitive	26.0
Work related - consistent; adaptable; enjoys	22.0	Poor mobility aid - safety; initiative; toilet	16.0
Compatible with lifestyle	16.0	Hair shedding	12.0
Companionship - great pet; affectionate	14.0	Does not compare to previous dog	6.0
First dog special - biggest impact on life	8.0	Office behaviour - unsettled; aggressive	6.0
Longest relationship as a team	6.0	Food distraction - scavenging; sniffing	6.0
Social interactions - attracts attention	4.0	Dog distraction; aggression	6.0
Sense of ownership	2.0	No or still establishing trust	4.0
		Social - growling; excessive salivation	4.0
		Dog in control - dominant; poorly trained	4.0
		Poor recall; escapism	4.0
		Poor health - not fit to work; low longevity	4.0
		First dog - inexperienced handler	2.0
Total	100	Total	100

No missing responses.

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GDS was established. The physical problems were unresolved for one half of the handlers whose dogs exhibited them, somewhat resolved for 38% and fully resolved for 12%.

Where applicable, participants were asked why they did not request help from the RNZFB's GDS concerning behavioural and physical problems. Responses included the problem being considered fairly minor, not wanting to be a bother, preferring to fix the problem themselves, believing the problem to be unfixable, and hoping the problem would just go away.

7.14 Dog Rating

To gain a more specific understanding of what qualities participants (N = 50) found attractive and unattractive in their dogs, the 64% of participants who had used more than one dog were asked to state the main characteristic that they liked best about their favourite dog and least about their least favourite dog. The 36% of participants who used only one dog were asked to state the best and worst qualities of that particular dog. The results of these preferences are displayed in Table 7.13.

The characteristics displayed in Table 7.13 relate to either work (W) or non-work (NW) scenarios, and are behavioural (B), physical (P) or emotional[4] (E) in nature. Therefore to distinguish between them, participants were asked to categorise their responses into one of the following six possible classifications:

- Work / Behavioural (W / B)
- Work / Physical (W / P)
- Work / Emotional (W / E)
- Non-Work / Behavioural (NW / B)
- Non-Work / Physical (NW / P)
- Non-Work / Emotional (NW / E).

[4] For the purpose of this research, 'emotional' is defined as a psychological response that could not be classified as either behavioural or physical. This concept is further exemplified on the next page.

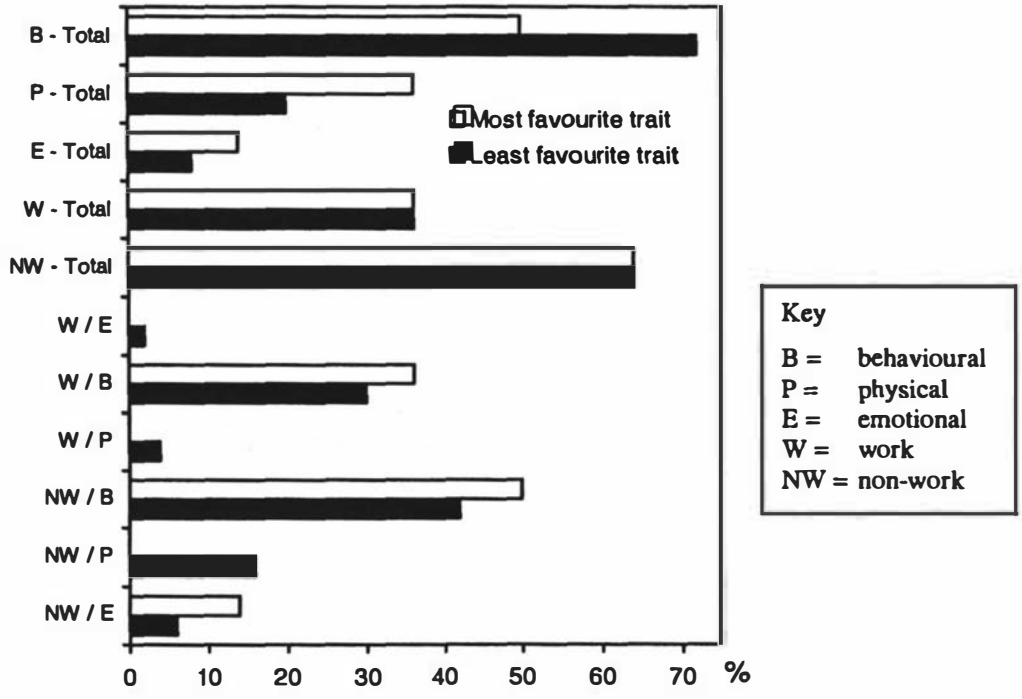

Figure 7.2. The most favourite (N = 50) and the least favourite (N = 50) dog characteristic concerning behaviour, physical and emotional categories and whether this relates to work or non-work.

The results of these classifications are illustrated in Figure 7.2, which shows the percent of preferred and least preferred characteristics pertaining to the discrete categories: behavioural, physical, emotional, work related and non-work related, as well as the six amalgamations of these characteristics shown in the bullet list above. An example of each of these amalgamations is provided below.

Most of the favourite and least favourite traits were behavioural in nature, and related equally to working and non-working issues. Specifically, half of the 'favourite' responses were classified as non-working behaviour (NW / B), followed by working behaviour (W / B) (36%) and non-working emotional (NW / E) (14%). To illustrate with examples from this sample, the non-working behaviour category is demonstrated by the dog that was wonderful company at home, working behaviour is shown by the dog that was excellent at finding destinations, and non-working emotional via the dog that was a soul mate for almost 12 years.

Likewise, the majority of the 'least favourite' responses were categorised as non-working behaviour (NW / B) (42%). This was followed by working behaviour (W / B) (30%), non-working physical (NW / P) (16%), non-working emotional (NW / E) (6%), working physical (W / P) (4%) and working emotional (W / E) (2%). Categorical illustrations from this sample for non-working behaviour include the dog that solicited too much attention at social functions and the dog that growled at visitors at home. The dog that failed to stop consistently at the end of the pavement (down kerb) exemplifies working behaviour, and the dog that shed hair excessively represents non-working physical. The statement "I don't know why I did not like that dog... it was quite a good worker and well behaved at home, but we just did not gel" was coded as non-working emotional. The dog that was categorised as working physical was considered too sick to work, and the dog classified as working emotional pertained to the inexperience of a handler who professed that he did not know how to work with his first dog.

The 64% of participants who had handled multiple dogs were asked to rate their dogs in order of favouritism. However, two of these participants (6.3%) who had used seven dogs between them, were unwilling to label their dogs in this way and have been omitted from this analysis. Of the 93 dogs in the analysis, just over half (53.3%) of the 30 dogs considered to be the favourite were first dogs, around a quarter were subsequent

dogs in current use and the same number were subsequent dogs that had been used previously.

The possibility that a 'primary and recency effect', that is, the tendency when using free recall to better remember the first and the most recent events (in this case, a dog) over those in between influenced the participants' responses was ruled out, as the effect does not hold when what is to be remembered has special, personal meaning, due to these experiences being easier to remember.

7.15 Dog Usage and Quality of Life

The dogs' effects on quality of life were examined by asking participants ($N = 50$) about their social interactions, fitness, physical and mental health, adjustment to loss of vision, and quality of life in general. Participants who had used more than one dog were asked to answer in as general a fashion as possible by combining their overall experiences with guide dogs.

7.15.1 Social interactions

All of the participants stated that the number of friendly approaches from strangers was increased when they used their guide dogs and that this effect on social interactions was a desirable outcome. However, almost half the participants stated that this increased their travel time and could get wearying, and that the public should first ask for permission before interacting with the dogs. One person resented the public using the dog as a screen to avoid interacting with a blind person.

7.15.2 Fitness

Seventy percent of participants said that their level of fitness improved once they used a guide dog. This was due to an increase in independent travel and, to a lesser extent, the dog requiring exercise. One person stated that her fitness decreased, as she now walked her dog instead of undergoing a rigorous workout at the gym. Another's decreased due to diminished mobility requirements directly attributable to loss of employment by having a dog in the workplace. Fitness was unchanged for 22% of participants, all of whom had been blind or sight impaired for a long time before they acquired a dog, and also unchanged for the 4% who received a dog soon after losing their sight.

7.15.3 Health

An improvement in mental and physical health was reported by 76% and 66% of participants respectively once they became guide dog handlers. This was mainly due to participants feeling better about themselves concerning improved mobility, social interactions and companionship. As for 'fitness' those who did not state an increase in health status were mainly people who were "good at" or "used to" being blind. However, feelings of wellbeing including confidence, motivation, and self-esteem were reduced for the large majority of participants who experienced an unsuitable dog, or at the time a dog was retired or died. The effects of the end of the partnership on quality of life are presented later in this chapter.

7.15.4 Adjustment

Two thirds of participants said the use of a dog helped them to adjust to their loss of vision. This was due to a variety of reasons including improved health and fitness. Other reasons given for this effect were that the dog not only helped people to forget their disability and act and feel more 'normal', but also helped family members and friends to accept the disability. Another perspective on adjustment was that it was improved by mobility enhancement, for example, it being easier to adapt to new routes when one moved to another house. Some participants felt that a dog was more likely to help a person who had useful residual vision to adjust, but that those with total vision loss should be fully adjusted beforehand. Others thought that a dog made it easier to adjust to vision loss whether it is sudden or gradual. It was also suggested that the use of a dog would help those with little social support to adjust. Adjustment was not an issue for around a third of the sample, as they had been blind a long time before they received a dog and/or they had a lot of social support. One person commented, "A dog is a mobility tool, not an emotional crutch; people should work on that [adjustment] for themselves".

7.15.5 Quality of life in general

Only two participants (4%) said that their overall quality of life was not improved by the use of a dog. One of these participants had good social support, other pets and a limited workload, and the other person was a good long cane traveller and did not become emotionally attached to his dogs. All the others felt that a dog improved quality of life for the reasons previously stated, with an emphasis on mobility enhancement.

Table 7.14. The handlers' ($N = 118$) friends' and families' feelings towards the guide dogs

Handlers' Friends' and Families' Feelings towards the Guide Dogs	%
Liked/loved dog	83.9
Positive and supporting of partnership	81.4
Negative - disliked dog; resentful; felt undervalued; dog seen as nuisance; scared of dog	9.3
Initially negative, now improved	7.6
Did not trust dog to be a safe and effective guide	5.9
Felt bad for handler regarding embarrassing canine social and/or toileting behaviours	5.9
Dog not wanted inside house/car/Marae (Maori meeting house)	4.2
Neutral	4.2
Not over loss of previous dog - compromising attachment to new dog	2.6
Enjoyed kudos of being with an 'important' dog	2.5
Spoiled dog; too much attention; too attached	.9
Dog brought family closer	.9
Initially positive, now worse	.9
Suspicious of unfamiliar breed - concern regarding safety of livestock	.9

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

Table 7.15. The handlers ($N = 118$) who established an emotional bond and formed a good working relationship with their dogs, and the time taken to do this for each dog and in the sample overall (O/all)

Description of the Bond and the Working Relationship	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
Bond									
Established (%)	98.0	81.3	93.3	87.5	60.0	50.0	100	100	89.0
Weeks to bond - range	0-208	1-78	1-72	1-24	1-4	N/a	N/a	N/a	0-208
Weeks to bond (M)	17.92	15.39	17.43	5.71	2.00	1.00	1.00	1.00	14.99
Weeks to bond (SD)	36.12	19.54	21.21	8.88	1.73	0	0	0	27.96
Good working relationship									
Achieved (%)	90.0	81.3	86.7	62.5	40.0	75.0	100	100	83.1
Months to good work - range	0-42	1-36	1-24	1-4	N/a	N/a	N/a	N/a	0-42
Months to good work (M)	7.13	7.31	7.54	1.50	1.00	1.00	1.00	1.00	6.38
Months to good work (SD)	8.60	8.75	7.15	1.12	0	0	0	0	8.01

No missing responses concerning percentages, as calculated from actually frequency of responses. However, the means and the standard deviations are calculated from valid responses only, thus missing responses are excluded.
N/a = not applicable.

However, other elements that increased quality of life such as family and friends worrying less regarding travel safety, and the dog facilitating access to good food and wine were mentioned.

7.16 Friends' and Families' Feelings towards Dogs

The handlers (N = 118) were asked to express what they thought their friends and family members' feelings about their guide dogs were. These proxy responses (which are supported by the results of the focus group in Chapter 4) are shown in Table 7.14, in decreasing order of frequency.

The results show that the large majority of the participants' friends and family members had positive feelings towards the dogs, and supported the participants' decision to use them. However, almost one-tenth expressed feelings of resentment or being usurped by the dog and no longer valued as a sighted guide, although in the case of successful matches many of these negative feelings dissipated over time and with familiarity.

7.17 The Naming of Dogs

The RNZFB's GDS owned, and therefore named, 107 of the 118 dogs in the sample. If it had been feasible for handlers to name their guide dogs, 19 (17.8%) of these 107 dogs' names would have been changed. Of those hypothetical name changes, 13 had positive or neutral connotations, and six had negative connotations. Upbeat names included "Te Mana" (used in context as Maori for *dignity*), "Squigglepup" for a ticklish dog and "Paddle" for a dog that liked to swim. Of these 13 dogs, 10 were considered good matches. All six names with negative connotations were related to dogs that were not considered well matched, and incorporated "Stupid" for a dog that lacked initiative, "Bitch" for a dog that was aggressive to other dogs and "Lizard" for a dog that licked constantly.

It should be noted that the decision to label these names as having positive or negative connotations was made by the researcher (author of this thesis), and therefore value judgements were applied. However, as mentioned in the method (Chapter 6), this question was mainly to provide closure about a particular dog before embarking on another dog or section of the questionnaire. Nonetheless, a useful finding emerged in that although the majority of the handlers had not wished to change their dogs' names,

Table 7.16. Definitions, means and standard deviations of the items comprising the original Compatibility scale of handlers (N = 118) and their dogs

Item	Definitions of Items Comprising the Original Compatibility Scale	*M*	*SD*
1	Need - handler's need for dog	8.09	2.14
2	Motivation - of handler to acquire dog	8.64	2.09
3	Motivation - of handler to succeed with dog	9.12	1.77
4	Control - ability of handler to control dog (working and social behaviour)	8.09	2.23
5	Bond - emotional connection between the handler and dog - 2-way relationship	8.26	2.42
6	Attachment - emotional attachment of handler to dog - one-way relationship	8.37	2.55
7	Travel - working relationship (dog's work and its effects on handler's mobility)	7.95	2.48
8	Social interactions - dog's effects on social function	8.25	2.08
9	Companionship - dog as companion	8.53	2.22
10	Suitability - of dog with handler	8.05	2.53
11	Satisfaction - handler's satisfaction with dog	8.13	2.46
12	Match - success of the match	7.91	2.80
	Total Score	99.37	20.07

All items were measured on a 1 to 10 scale with 10 = greater compatibility.

Table 7.17. Means and standard deviations of the items comprising the original Compatibility scale for when each dog was used (N = 118)

Item Description of the Original Compatibility Scale		Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)
1. Need	(*M*)	7.24	8.63	9.07	8.50	8.80	8.25	9.00	9.00
	(*SD*)	2.34	1.72	1.58	1.93	2.17	2.87	1.41	1.41
2. Motivation - acquire	(*M*)	7.88	8.97	9.13	9.38	9.80	9.25	10.00	10.00
	(*SD*)	2.40	1.91	1.77	1.06	.45	1.50	.00	.00
3. Motivation - succeed	(*M*)	9.40	9.16	9.00	8.5	8.40	7.00	10.00	10.00
	(*SD*)	.93	1.78	2.30	2.14	3.05	4.24	.00	.00
4. Control	(*M*)	8.08	7.72	9.00	7.30	7.20	8.50	10.00	10.00
	(*SD*)	2.16	2.40	1.13	3.15	3.12	1.29	.00	.00
5. Bond	(*M*)	9.06	7.59	8.67	7.13	6.00	6.00	9.50	9.50
	(*SD*)	1.39	2.99	1.45	2.85	4.30	3.56	.71	.71
6. Attachment	(*M*)	9.46	8.13	8.13	5.88	5.00	5.25	10.00	10.00
	(*SD*)	.84	2.67	2.62	3.48	4.18	3.30	.00	.00
7. Travel	(*M*)	8.28	7.66	8.27	6.80	6.00	7.75	10.00	10.00
	(*SD*)	2.13	2.90	1.70	3.01	3.94	1.26	.00	.00
8. Social interactions	(*M*)	8.90	7.81	8.53	7.30	5.00	7.75	9.00	9.00
	(*SD*)	1.27	2.42	1.64	2.61	3.87	.96	1.41	1.41
9. Companionship	(*M*)	9.30	8.09	8.80	7.00	5.40	6.75	10.00	10.00
	(*SD*)	1.17	2.61	1.57	3.12	3.91	1.71	.00	.00
10. Suitability	(*M*)	8.98	7.47	8.20	6.80	5.20	6.25	8.00	9.00
	(*SD*)	1.45	3.18	1.90	3.01	4.02	2.75	1.41	1.41
11. Satisfaction	(*M*)	8.78	7.66	8.33	6.75	6.40	6.25	9.50	10.00
	(*SD*)	1.71	3.10	1.84	3.01	3.65	2.22	.71	.00
12. Match	(*M*)	8.52	7.47	8.47	6.63	5.20	5.75	9.50	10.00
	(*SD*)	2.24	3.24	2.03	3.20	4.44	2.63	.71	.00

See Table 7.16 for item definitions, means and standard deviations of the overall sample (N = 118).

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many commented that names should be clipped and easy to say, and should have a maximum of two syllables. This was considered important anywhere the dogs' attention may be demanded for reasons of safety, such as waiting at a down-kerb to cross traffic.

7.18 Compatibility

7.18.1 The bond and the working relationship

The time it took the handlers to establish an emotional bond and form a good working relationship with each of their dogs (N = 118) is shown in Table 7.15. Overall, 89% of the handler-dogs teams established a bond and handlers thought that it took on average three and a half months to do so (M = 14.99 weeks, SD = 27.96). The majority of teams (83.1%) achieved a good working relationship, which took around six months (M = 6.38 months, SD = 8.01) to develop; a finding that supports the comments addressed in the focus group discussion (Chapter 4). Measurements of the bond and the working relationship were included in a scale that assessed compatibility, which will be examined in the next section.

Trends between the first, second and third dogs concerning the establishment of a bond and the achievement of a good working relationship (Table 7.15), suggest that a bond was established and a good working relationship was achieved most often for first dogs and least for second, which is a similar pattern to how well expectations of guide dog use were met (Figure 7.1). These trends, which are further explored in Chapter 10, section 10.1, are not apparent regarding how long it took to bond and to form a good working relationship (Table 7.15) as these results pertained only to teams that had bonded and attained good working relationships.

7.18.2 Development of the Compatibility Scale

A Compatibility Scale (CS) was developed by the researcher to determine how compatible the handlers perceived their dogs to be with themselves. The original model comprised 12 items, which were measured on a continuous scale from 1 to 10, with a higher score indicating a greater degree of compatibility. A description and definition of each item, as it relates to the overall sample (N = 118), is presented in Table 7.16, and for when each dog was being used in Table 7.17. Correlations to explore relationships between the items were calculated using Pearson product-moment correlation coefficients (r), which are presented in Table 7.18.

Table 7.18. Correlations among the items comprising the original Compatibility scale of handlers' ($N = 118$) and their dogs

Item	Measures	1	2	3	4	5	6	7	8	9	10	11	12
1	Need	-											
2	Motivation - a	.58**	-										
3	Motivation - s	.19*	.13	-									
4	Control	-.01	-.06	.21*	-								
5	Bond	-.07	-.11	.43**	.58**	-							
6	Attachment	.04	-.08	.57**	.43**	.81**	-						
7	Travel	-.01	-.07	.33**	.74**	.74**	.64**	-					
8	Social-interacts.	-.09	-.18*	.27**	.55**	.72**	.71**	.61**	-				
9	Companion	-.01	-.06	.38**	.53**	.88**	.87**	.69**	.78**	-			
10	Suitability	-.08	-.18	.38**	.57**	.85**	.77**	.74**	.76**	.80**	-		
11	Satisfaction	-.05	-.10	.45**	.70**	.85**	.76**	.84**	.74**	.81**	.88**	-	
12	Match	-.03	-.12	.45**	.72**	.78**	.73**	.81**	.73**	.78**	.84**	.93**	-
	Total Score	.15	.06	.54**	.71**	.89**	.86**	.85**	.79**	.89**	.88**	.93**	.91**

* $p < .05$ ** $p < .01$
a = Motivation to acquire a dog s = Motivation to succeed with the match

Table 7.19. Component matrix of Varimax rotation of the two factor solutions for the Compatibility scale

Item	Variable (measure)	Component 1	Component 2
11	Satisfaction	.95	-
12	Match	.93	-
5	Bond	.92	-
10	Suitability	.91	-
9	Companionship	.90	-
6	Attachment	.87	-
7	Travel	.85	-
8	Social interactions	.83	-
4	Control	.71	-
3	Motivation (succeed)	.50	.41
1	Need	-	.87
2	Motivation (acquire)	-	.85
	% of variance explained	60%	14%

All the items, except for 'need to get a dog' (item 1) and 'motivation to acquire a dog' (item 2), significantly and positively inter-correlated with each other. The relationships of the coefficients ranged from weak (r = .21) to strong (r = .93), and shared a range of variance from around 4 to 87%. Although 'need to get a dog' was significantly correlated in a strong manner (r = .58) with 'motivation to acquire one', and weakly (r = .19) with 'motivation to succeed with a match' (item 3), it was not significantly linked with any other variable. 'Motivation to acquire a dog' was also significantly linked, albeit weakly (r = -.18), to 'social interactions' (item 8) indicating that the more pronounced a dog's effects were on enhancing social function the less participants had been motivated to get one. This latter effect may be due to people who were not so keen on getting a dog being more surprised than the others regarding the dogs' effects on social function. However, the low r-value indicates that this is a weak relationship (i.e. with only 3.24% of shared variance) despite it being statistically significant. Hence, the decision was made to remove need for a dog (item 1) and motivation to acquire one (item 2) from the analysis. This was backed up by a reliability analysis that showed these items did not correlate highly enough with the total score (< .30, Table 7.18) (Pallant, 2001), and PCA (Table 7.19), as described below.

The factorability of the correlation matrix was deemed suitable for PCA as there were many correlations of $r \geq .30$, the Bartlett's test of sphericity was significant, and the KMO value was .87. Two underlying factors from the set of variables emerged, each with an eigenvalue above 1.00 and collectively explaining 74% of the variance. Extraction of these two components was backed up by the results of the screeplot provided by SPSS. To aid in the interpretation of these two components, Varimax rotation, which assumes that the factors are not related (as per the results from Table 7.18) was performed, and the results shown in Table 7.19. The relatively simple structure remained where each of the variables loaded substantially on only one of the two components, with the exception of one variable (motivation to succeed) that loaded onto both in a similar manner. In most cases the solutions had several high loading (> .80) marker variables that Guadagnoli and Velicer (as cited in Pallant, 2001) say enhances the suitability for data to be analysed via PCA. These results support the decision not to include items 1 and 2 (need for a dog and motivation to acquire one) in the scale.

Table 7.20. Description of the items comprising the adapted model of the Compatibility scale of handlers (N = 118) and their dogs

Item	Adapted Compatibility Scale Items	*M*	*SD*
3	Motivation	9.12	1.77
4	Control	8.09	2.23
5	Bond	8.26	2.42
7	Travel	7.95	2.48
8	Social interactions	8.25	2.08
9	Companionship	8.53	2.22
12	Match	7.91	2.80
	Total Score	58.09	13.22

All items were measured on a 1 to 10 scale with 10 = greater compatibility.

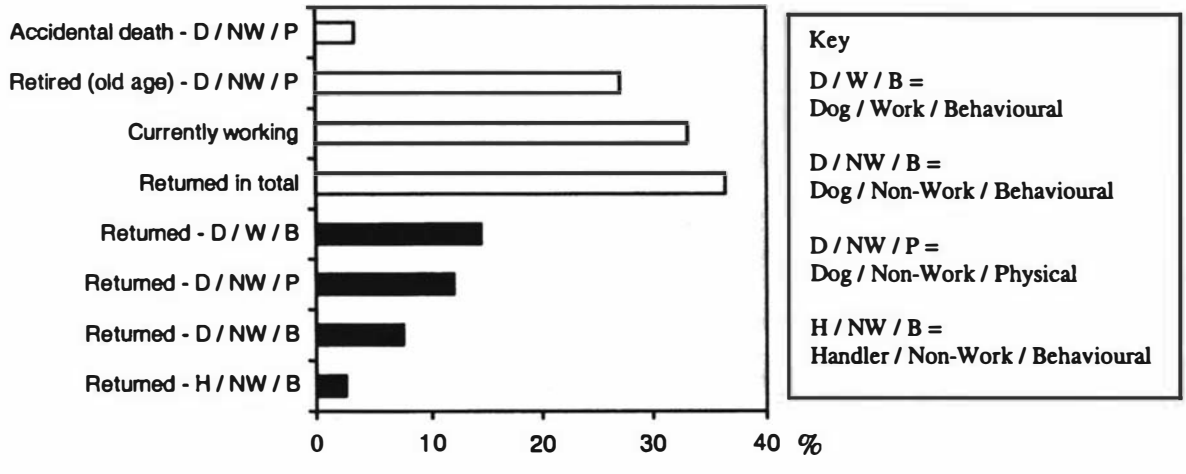

Figure 7.3. The outcome of the dogs' (N = 118) working lives. The white bars show the broad outcomes and the black bars categorise why dogs were returned to the RNZFB's GDS.

Other items were removed due to the effects of multicollinearity. These included (a) attachment (item 6), which despite the differences in definitions[5] seemed too similar to bonding (item 5), and (b) suitability (item 10) and (c) satisfaction (item 11) were removed while matching success (item 12) was retained. Companionship (item 9) was retained at this time despite correlating strongly (.88) with bonding as both items were of interest as potential predictors of overall matching success.

A total compatibility score (M = 58.09, SD = 13.22) was calculated for the adapted model (Table 7.20) by summing the seven remaining items. As for the FES, this score was also predictably negatively skewed and transformations were not warranted, as the score was not being used as a dependent variable. Some low-scoring outliers existed that were not removed from the analyses, as the '5% trim mean' was similar to the mean values shown, indicating that no extreme scores had a strong influence on the mean (Pallant, 2001). A Cronbach's alpha coefficient of .92 indicated that the scale had good internal consistency and appeared to be created from items measuring the same underlying construct. These variables were entered into a logistic regression analysis to assess the relationship between compatibility and the success or failure of the match, the results of which will be presented in Chapter 9.

7.19 The Outcome of the Partnership

The outcome of all the handler-dog partnerships (N = 118) in terms of whether a dog was currently working, retired[6], accidentally deceased, or returned[7] to the RNZFB's GDS is illustrated in Figure 7.3. A third (33.1%) of dogs in the sample were currently working. Of the two thirds (66.9%) that were not, 36.4% were returned to the GDS before the dog reached retirement age, 27.1% retired due to disorders related to old age

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[5] For the purpose of this research, the definition of 'bonding' differs from 'attachment' in that a bond implies a two-way relationship, for example, a handler who is emotionally attached to a dog and who believes that the dog is also emotionally attached is defined as 'bonded'. Attachment can be explained as a one-way emotional bond of a handler to a dog, or vice-versa, for example, a handler, who is devoted to a dog that is not willing to please him or her, may score low on bonding but high on attachment.

[6] Dogs that stopped working at age eight and older were classified as 'retired', including dogs that died after this age.

[7] For simplification, the term 'returned' pertains to a dog that is less than eight years old, which did not succeed as a guide for a particular handler, including dogs that were not owned by the RNZFB's GDS. It should be noted that many dogs that are returned are rematched to other handlers with varying degrees of success. Dogs that returned but not rematched are classified as 'withdrawn'. These dogs may be rehomed or kept by the handler.

Table 7.21. The outcome of the dogs' (N = 118) working lives when each dog was used and in the sample overall (O/all), and the general and specific categories for why dogs were returned or were being considered for return

Outcome Status of Dogs' Working Lives	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (N=118)
Currently working (%)	28.0	40.6	46.7	25.0	0	25.0	0	100	33.1
Retired - old age (≥ 8yrs) (%)	40.0	18.8	26.7	25.0	0	0	0	0	27.1
Accidental death (≤ 8yrs) (%)	4.0	0	6.7	0	0	0	50.0	0	3.4
Returned in total (≤ 8yrs) (%)	28.0	40.6	20.0	50.0	100	75.0	50.0	0	36.4
Returned - general (%)									
Dog physical (D/P)	12.0	15.6	0	0	40.0	0	50.0	0	11.9
Dog behaviour (D/B)	16.0	24.8	6.7	50.0	60.0	50.0	0	0	22.0
Handler behaviour (H/B)	0	0	13.4	0	0	25.0	0	0	2.6
Returned - D/P specific - health (%)									
Musculo-skeletal (NW)	2.0	6.3	N/a	N/a	20.0	N/a	50.0	N/a	4.3
Cancer (malignant) (NW)	6.0	3.1	N/a	N/a	0	N/a	0	N/a	3.4
Endocrine (NW)	0	6.3	N/a	N/a	0	N/a	0	N/a	1.7
Gastro-intestinal (NW)	2.0	0	N/a	N/a	0	N/a	0	N/a	.9
Renal (NW)	2.0	0	N/a	N/a	0	N/a	0	N/a	.9
Skin (NW)	0	0	N/a	N/a	20.0	N/a	0	N/a	.9
Returned - D/B specific (%)									
Specific guiding tasks (W)	2.0	0	0	0	20.0	0	0	0	1.7
Distracted/aggressive to dogs (W)	6.0	0	0	37.5	0	0	0	0	5.1
Social (inc. home) (NW)	4.0	12.5	6.7	0	20.0	25.0	0	0	7.6
Capacity to work (work rate) (W)	2.0	3.1	0	12.5	0	0	0	0	2.5
Coping (anxiety; adaptability) (W)	2.0	3.1	0	0	0	25.0	0	0	2.5
Working speed (W)	0	6.3	0	0	20.0	0	0	0	2.5
Returned - H/B specific (%)									
Temporary match (NW)	0	0	6.7	0	0	0	0	0	.9
Family (NW)	0	0	6.7	0	0	0	0	0	.9
Environment - unknown (NW)	0	0	0	0	0	25.0	0	0	.9
Currently working - general (%)									
Going well	14.0	31.3	40.0	25.0	0	0	0	100	22.9
Good, but nearing retirement	12.0	3.1	0	0	0	0	0	0	5.9
Potential return - D/B & D/P	2.0	6.3	6.7	0	0	25.0	0	0	4.2
Currently working, but being considered for return - specific (%)									
Distract./aggress. to dogs (D/W/B)	2.0	0	0	0	0	0	0	0	.9
Coping (D/W/B)	0	3.1	0	0	0	0	0	0	.9
Scavenging (D/NW/B)	0	0	6.7	0	0	0	0	0	.9
Aggressive to other pets (D/NW/B)	0	3.1	0	0	0	0	0	0	.9
Ill-health - skin (D/W/P)	0	0	0	0	0	25.0	0	0	.9

No missing responses.
N/a = not applicable.
Key: D = Dog; H = Handler; B = Behavioural; P = Physical; W = Work; NW = Non-Work.

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(poor health, failing eyesight, slowing down etc.) and 3.4% died from accidental causes prior to retiring. An itemisation of the dogs that were currently working and the main general and specific explanation for why dogs either were returned or were under consideration for return is shown in Table 7.21.

7.19.1 Reasons dogs cease working

Although the majority of dogs (66.9%) had ceased working, most (63.6%) of the dogs in the sample had not been returned. The primary reasons for dogs not currently working or being considered for return have been categorised as either dog (D) related or handler[8] (H) related, grouped into work (W) verses non-work (NW) scenarios, and considered behavioural (B) or physical (P) in nature. Of the following eight possible classifications, four were relevant to the sample, which have been marked with an asterisk and illustrated in Figure 7.3:

- Dog / Work / Behavioural* (D / W / B)*
- Dog / Work / Physical (D / W / P)
- Dog / Non-Work / Behavioural* (D / NW / B)*
- Dog / Non-Work / Physical* (D / NW / P)*
- Handler / Work / Behaviour (H / W / B)
- Handler / Work / Physical (H / W / P)
- Handler / Non-Work / Behavioural* (H / NW / B)*
- Handler / Non-Work / Physical (H / NW / P).

Concerning the 36.4% (n = 43) of dogs that were returned, 93% (n = 40) of the problems were dog related. Of these dog related problems, most (65%; n = 26) were behavioural in character including the dogs' working speed[9], and 35% (n = 14) were from physical causes. The remaining 7% (n = 3) of returns were due to matters relating

[8] For the purpose of this research, the category 'handler' incorporates the effects of Dahlgren and Whiteheads' (1991) socioeconomic model where the handler's decision regarding the return of a dog may have been influenced by social or environmental factors not of the handler's choosing, such as a dog not being wanted by family or work-mates.

[9] Although, the working speed of the dog can be measured and hence is a 'physical' entity, the context in which the instructors use it for matching and the responses of the participants, means that for the purpose of this research it is being classified as 'behavioural' (S. Bruce, Education and Training Manager, RNZFB's GDS, personal communications, February 2003).

to the handlers' behaviour (Table 7.21). More second dogs were returned than first or third dogs respectively, and around twice the number of second and third dogs that were currently working were being considered for return compared with first.

Of the 26 dogs (22% of all dogs in the sample) that were returned for dog behavioural problems, two thirds (65.4%; n = 17) pertained to when the dogs were working (D / W / B), and the remaining nine dogs (7.6% of all dogs in the sample) were returned for behaviours unrelated to work (D / NW / B). All 14 dogs (11.9% of all dogs in the sample) returned for physical problems were due to health issues unrelated to work (D / NW / P). None of the three handlers that returned dogs (2.6% of all dogs in sample) because of their own behaviour did so for problems related to work (H / NW / B).

Although most (14.4% of all dogs) returns were due to problems associated with the dogs' working behaviour, the largest single reason (7.6% of all dogs) was for the dogs' non-working behaviour, that is, poor social and/or home behaviours (Table 7.21). The problem most (5.1% of all dogs) frequently reported was dogs being distracted by and/or aggressive to other dogs. Most (4.3% of all dogs) dogs that were returned for dog non-working physical issues had musculo-skeletal disorders, followed by cancer (3.4% of all dogs). Concerning the dogs (2.6% of all dogs) that were returned for the handlers' non-working behaviour, only one was returned at the choice of the handler, with extraneous social and environmental factors primarily responsible for the return of the other two dogs. These were pressure not to have a dog in the workplace, and a partner not approving of a dog living in the house.

Of the 33.1% of dogs working at the time of the interview, 22.9% were going well, 5.9% were approaching retirement after a successful partnership, and 4.2% were being considered for return because of various dog related problems, as shown in Table 7.21.

No dogs were returned or were being considered for return in four of the eight possible classifications shown previously. These four classifications included physical problems concerning the dogs' work (D / W / P), and all handler categories excluding non-work related behaviours (H / NW / B).

Table 7.22. Whether handlers deemed their dogs ($N = 118$) to be successfully matched or not and how this related to the dogs being returned or retained when each dog was used and in the sample overall (O/all)

Dogs' Matching Status and Months Worked	Dog 1 (n=50)	Dog 2 (n=32)	Dog 3 (n=15)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (*N*=118)
Successfully matched in total (%)	80.0	68.7	86.7	50.0	40.0	50.0	100	100	73.7
Months worked - range	1-132	1-144	4-132	2-156	62-96	2-20	9-24	42-72	1-156
Months worked - (*M*)	75.05	61.77	53.46	71.50	79.00	11.00	16.50	57.00	65.16
Months worked - (*SD*)	38.67	41.75	46.03	70.64	24.04	12.73	10.61	21.21	42.29
Mismatched in total (%)	20.0	31.3	13.3	50.0	60.0	50.0	0	0	26.3
Months worked - range	3-138	1-30	12-18	3-14	3-25	2-24	N/a	N/a	1-138
Months worked - (*M*)	50.90	13.10	15.00	7.75	10.33	13.00	N/a	N/a	24.45
Months worked - (*SD*)	47.86	8.01	4.24	5.62	12.70	15.56	N/a	N/a	32.81
Retained in total (%)	72.0	59.4	80.0	50.0	0	25.0	50.0	100	63.6
Months worked - range	12-138	9-144	4-132	2-156	N/a	N/a	N/a	42-72	2-156
Months worked - (*M*)	85.03	65.90	55.92	71.50	N/a	20.00	24.00	57.00	72.37
Months worked - (*SD*)	36.55	41.37	46.77	70.64	N/a	0	0	21.21	42.30
Returned in total (%)	28.0	40.6	20.0	50.0	100	75.0	50.0	0	36.4
Months worked - range	1-72	1-72	6-36	3-14	3-96	2-24	N/a	N/a	1-96
Months worked - (*M*)	32.14	18.31	18.00	7.75	37.80	9.33	9.00	N/a	23.23
Months worked - (*SD*)	25.76	20.76	15.88	5.62	40.49	12.70	0	N/a	24.68
Combination 1									
Successfully matched - Retained (%)	62.0	53.1	73.3	50.0	0	25.0	50.0	100	56.8
Months worked - range	12-132	9-144	4-132	2-156	N/a	N/a	N/a	42-72	2-156
Months worked - (*M*)	85.71	70.94	59.36	71.50	N/a	20.00	24.00	57.00	74.03
Months worked - (*SD*)	35.78	40.78	47.42	70.64	N/a	0	0	21.21	41.87
Combination 2									
Mismatched - Retained (%)	10.0	6.3	6.7	0	0	0	0	0	6.8
Months worked - range	14-138	16-30	N/a	N/a	N/a	N/a	N/a	N/a	14-138
Months worked - (*M*)	80.80	23.00	18.00	N/a	N/a	N/a	N/a	N/a	58.50
Months worked - (*SD*)	45.47	9.90	0	N/a	N/a	N/a	N/a	N/a	46.31
Combination 3									
Successfully matched - Returned (%)	18.0	15.6	13.3	0	40.0	25.0	50.0	0	17.0
Months worked - range	1-72	1-72	6-36	N/a	62-96	N/a	N/a	N/a	1-96
Months worked - (*M*)	38.33	30.60	21.00	N/a	79.00	2.00	9.00	N/a	35.45
Months worked - (*SD*)	23.07	30.50	21.21	N/a	24.04	0	0	N/a	28.30
Combination 4									
Mismatched - Returned (%)	10.0	25.0	6.7	50.0	60.0	50.0	0	0	19.5
Months worked - range	3-72	1-18	N/a	3-14	3-25	2-24	N/a	N/a	1-72
Months worked - (*M*)	21.00	10.63	12.00	7.75	10.33	13.00	N/a	N/a	12.61
Months worked - (*SD*)	29.16	5.78	0	5.62	12.70	15.56	N/a	N/a	14.76

No missing responses.
N/a = not applicable.

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The handlers were asked to identify the main reason why their partnerships with their dogs ended. However, 24 of the 26 handlers who had returned a dog primarily for dog behavioural reasons stated that their dogs exhibited multiple problems. None of the 14 handlers who returned their dogs for dog physical reasons said that there were other issues sufficiently problematic to warrant return. Eight of the nine dogs that were returned for the dogs' non-working behaviour (primarily for poor social behaviour) also had behavioural problems related to work. These included low coping skills (non-adaptable, anxious), poor work rate (lack of initiative, unwilling, inconsistent), easily distracted, overly sensitive, working speed too fast and toileting on walks. Sixteen of the 17 dogs returned mainly for their working behaviour also displayed a range of non-work related problems. These included poor social behaviour (n = 8) and three dogs were criticised for physical issues such as shedding hair and for being a specific breed.

7.19.2 Mismatched dogs versus returned dogs

In addition to establishing why some dogs were returned, handlers were asked if they considered any of their dogs (N = 118) to have been mismatched. Not all dogs that were returned before reaching retirement age were considered by their handlers to have been mis-matched, and not all dogs retained until retirement were thought to have been good matches. Thus, the dogs were classified as belonging to one of the following four combinations:

Combination 1:	Successfully matched and Retained	(56.8%, n = 67)
Combination 2:	Mismatched but Retained	(6.8%, n = 8)
Combination 3:	Successfully matched but Returned	(17%, n = 20)
Combination 4:	Mismatched and Returned	(19.5%, n = 23).

The percentage and the working life of dogs that were considered to be mismatched or not, and how this relates to dogs that are returned or retained by the handlers is shown in Table 7.22.

The majority (73.7%, n = 87) of dogs in the sample (N = 118) were considered to have been successfully matched and 63.6% (n = 75) of all dogs were retained (Table 7.22). Successfully matched dogs worked from 1 to 156 months, with an average working life of around 5.5 years (M = 65.16 months, SD = 42.29), while dogs that were considered

mismatched worked from 1 to 138 months, with an average working life of just over two years (M = 24.45, SD = 32.81). Retained dogs worked from 2 to 156 months, with an average working life of around six years (M = 72.37, SD = 42.30), while the total number of returned dogs worked from 1 to 96 months, with an average working life of just under two years (M = 23.23, SD = 24.68). However, these results pertain to the time of the interview, and do not reflect the full working life of all partnerships. Hence, the following analyses were conducted on the 66.9% (n = 79) of dogs that had reached the end of a working partnership.

These previously used dogs worked from 1 to 156 months, with an average working life of 4.7 years (M = 55.85, SD = 45.98). Successful partnerships (n = 53) lasted from 1 to 156 months, with an average service duration of six years (M = 72.34, SD = 42.79) and the largest number of dogs (mode) were returned after 10 years. Unsuccessful partnerships (n = 26) lasted from 1 to 138 months, but were returned on average at less than two years (M = 22.23, SD = 32.19), with the largest number being returned after three months. However, dogs that were returned for being unsuccessfully matched (n = 23) ranged from 1 to 72 months and were returned on average at just over one year (M = 12.61, SD = 14.67). All bar one of these dogs were returned within two years and the remaining dog after six years. Excluding this dog, unsuccessfully matched dogs worked on average for just under 10 months, but the largest number were returned after three months.

Combination 1: Successfully Matched and Retained

Most of the dogs (56.8%, n = 67) in the sample were considered to be well matched and were kept by their handlers. Three dogs (2.5%) whose handlers believed them to be poor mobility aids were included in this group. This was due to the handlers feeling that they had enough useful residual vision to compensate for the dogs' lack of abilities and/or because the dogs were considered good companions.

Combination 2: Mismatched but Retained

The 6.8% (n = 8) of dogs that were considered mismatched but not returned were retained for several reasons. These included three participants who had used more than one dog becoming emotionally attached to their first dogs and were highly motivated to make the partnership work, and another multiple dog handler who claimed not to have

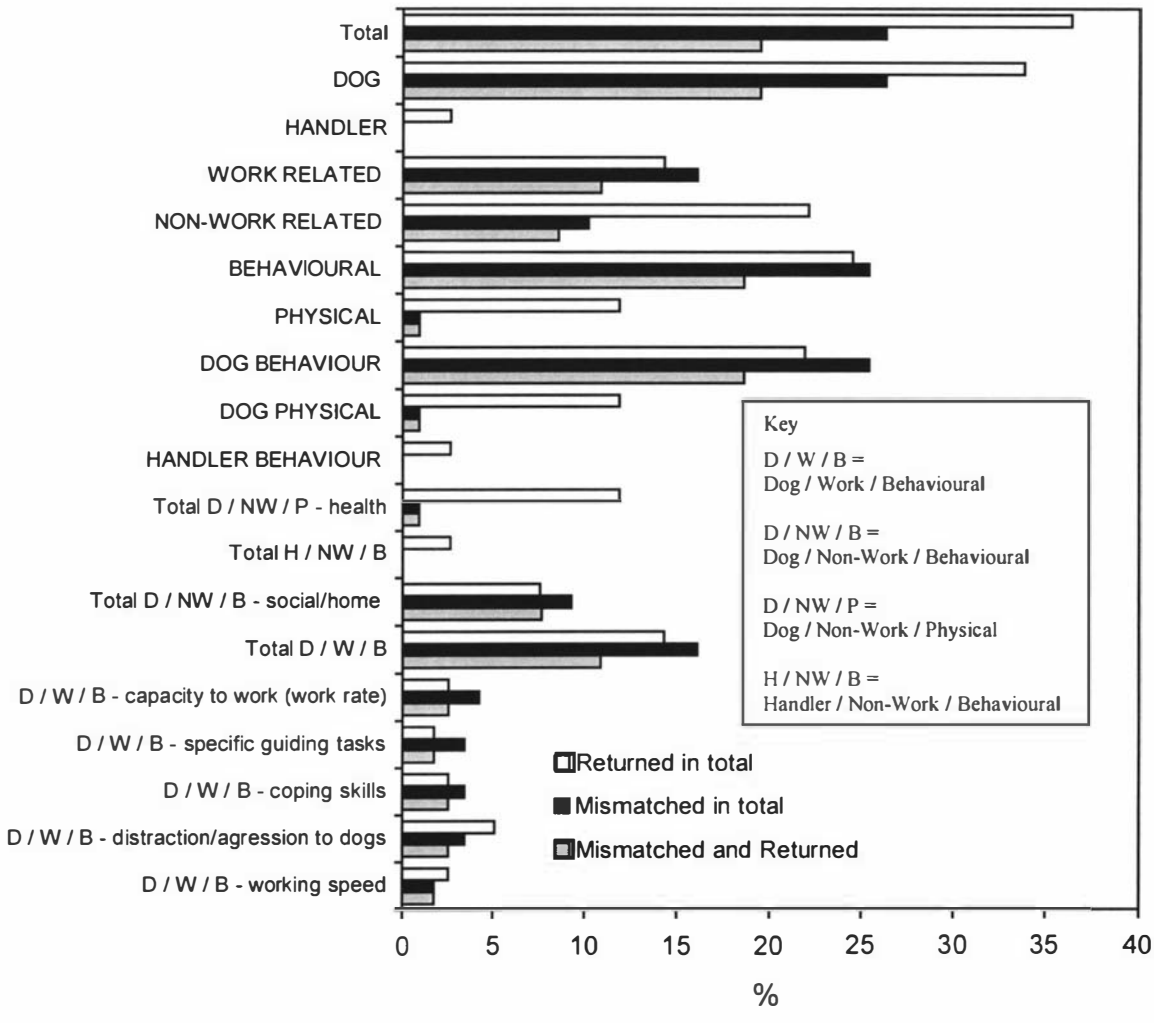

Figure 7.4. The percent of dogs (N = 118) returned, deemed mismatched and returned for being mismatched by general (capitalised) and specific physical and behavioural categories of handler and dog, and whether this relates to work or non-work.

known any better as it was his first dog and he had nothing to compare it to. The other four dogs that were retained despite being unsuccessfully matched were four of the five dogs in current use that were being considered for return (Table 7.21) for reasons of: one being distracted by and aggressive to other dogs when working, one being aggressive to other pets, one being overly sensitive and not coping with the demands of guiding, and the other scavenging on and off the job.

Combination 3: Successfully Matched but Returned

Twenty dogs in the sample (17%) were returned before the dogs reached retirement age despite being successfully matched. Of these dogs, 60% (n = 12) were returned due the dogs' unexpected ill-health (10.2% of all dogs), one dog was returned for slowing down through the normal ageing process as it neared retirement age, one dog was withdrawn by the guide dog school because of protective aggressive tendencies, one dog was returned as it had been matched on a temporary basis until the handler's preference for a younger dog could be fulfilled, one dog was swapped with a close associate of the handler with the approval of the RNZFB's GDS, and one dog was withdrawn by the guide dog school for reasons unknown. The remaining three dogs that were returned although successfully matched (2.5% of all dogs), were ultimately returned by handlers who had made informed choices to accept these dogs when the RNZFB's GDS discussed potential problems at the time of matching. Two of these dogs were returned for dog distraction/aggression and one for an ongoing health problem.

Overall, handlers claimed to be very emotionally attached to 18 of the 20 dogs in this group. Concerning the handlers of the remaining two dogs, one was moderately attached (temporary match), and the other, who returned her dog because of its poor health, felt guilty for not bonding more with a dog she had not realised at the time was too sick to work effectively.

Combination 4: Mismatched and Returned

The physical and behavioural categories of handler and dog and how they relate to work and non-work issues for dogs that were (a) returned in total (36.4%, n = 43), (b) mismatched in total (26.3%, n = 31) and (c) returned for being mismatched (19.5%, n = 23) are illustrated in Figure 7.4. For all three groups, there are more problems that relate to the dog than the handler and there are more behavioural than physical problems.

Returned	Mismatched: No	Mismatched: Yes
No	Combination 1 **Successfully matched and Retained** 56.8% (n = 67)	Combination 2 **Mismatched but Retained** 6.8% (n = 8)
Yes	Combination 3 **Successfully matched but Returned** 17.0% (n = 20)	Combination 4 **Mismatched and Returned** 19.5% (n = 23)

Yates' Correction for Continuity $\chi^2(1, N = 118) = 23.71, p < .0005$

Figure 7.5. Association between matching success and dogs that are returned or retained.

Fewer dogs were returned in total for work related reasons than for non-work. However, more dogs were considered mismatched and returned for being mismatched for reasons pertaining to work. More particularly, a higher percentage of dogs were returned, deemed mismatched, and returned for being mismatched for problems relating to *dog behaviour*, *dog physical* and *handler behaviour* respectively.

Specifically, more dogs were thought to be mismatched than were actually returned for being mismatched regarding the dogs' "social and home behaviours", "capacity to work", "specific guiding tasks" and "coping skills". More dogs were returned than were deemed mismatched concerning the dogs' "distraction" and "aggression" to other dogs, "working speed", and "health". No handlers who returned their dogs because of, or related to, their own behaviour considered these dogs to be mismatched.

Relationships between the combinations

A chi-square test for independence was conducted to examine the relationships between the number of dogs assigned to each of the four combinations. The frequencies are illustrated in Figure 7.5. A significant result was obtained using Yates' Correction for Continuity (χ^2 (1, N = 118) = 23.71, $p < .0005$) suggesting that the proportion of dogs that was returned for being mismatched (74.2% of all mismatched dogs) was significantly different from the proportion of dogs that was returned although successfully matched (23% of all successfully matched dogs). A calculation of the odds ratio indicated that dogs were 9.6-times more likely to be returned if deemed mismatched.

7.19.3 Defining matching success

Defining matching success is not clear-cut. The results indicate that a substantial number of handlers return dogs (17%, n = 20) for reasons that do not pertain to being mismatched, mainly for the dogs' poor health. The results also suggest that more dogs were considered mismatched (26.3%, n = 31) than were returned for problems arising from these mismatches (19.5%, n = 23). As a goal of this research was to identify what factors were important in creating a successful match, it seemed sensible to focus on whether a dog was considered mismatched *per se* as opposed to whether it was returned for being mismatched.

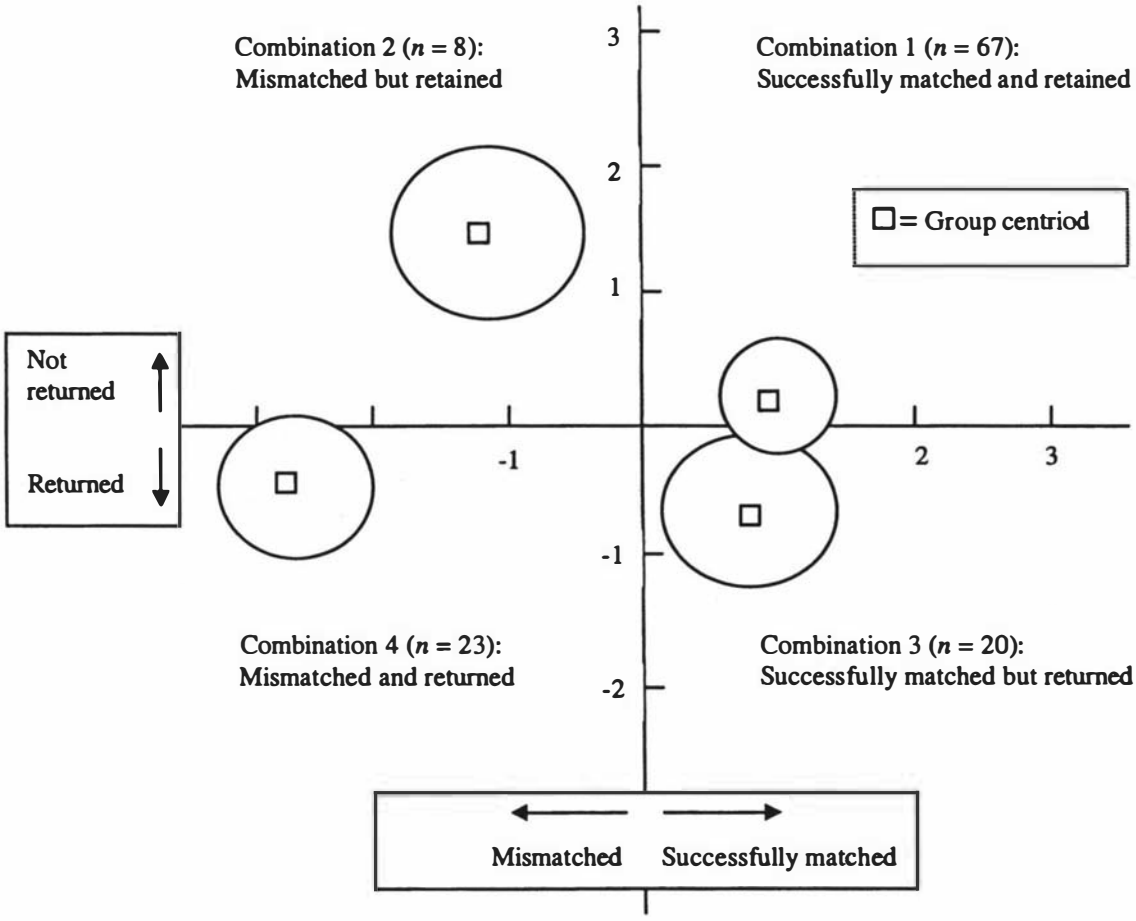

Figure 7.6. A discriminant function analysis plot showing an estimation of the group centroids and the corresponding confidence circles for matching success for Combinations 1 to 4.
Note: The confidence circles were calculated as per Maxwell (1977).

A discriminant function analysis was conducted to check that the above classification decision was viable. Although a significant Box's *M* value indicated that assumptions of equality of covariance matrices were not met, the results (Figure 7.6) suggest that there were three distinct groups that differed significantly from each other ($\chi^2 = 170.57$, $df = 36$, $p < .0005$), that is, Combination 2, Combination 4 and Combination 1-3 composite. In essence, the dogs deemed to be mismatched (Combinations 2 and 4) were considerably different from those that were not (Combinations 1 and 3). There were no meaningful differences between dogs that were not considered mismatched that were retained (Combination 1) and those that were returned (Combination 3). Dogs that were considered mismatched but retained (Combination 2) appeared to differ somewhat from those that were considered mismatched and returned (Combination 4). However, the number of dogs in Combination 2 ($n = 8$) was small, and the decision to combine these dogs with the other mismatched dogs in Combination 4 was justified qualitatively as described above in the section entitled 'Combination 2: Mismatched but Retained'. Hence, it was decided that the outcome (or dependent) variable to define matching success was whether dogs were considered to be mismatched or not by their handlers. Factors affecting this definition of matching success will be reported in Chapter 10.

7.19.4 Matches before and after managerial restructure, and from overseas

Although not a focus of the study, the following summary compares the outcome of matches that were made in New Zealand before and after the RNZFB's GDS was managerially restructured in 1988, and overseas.

Of the 109 dogs that were matched in New Zealand, 17.4% ($n = 19$) were matched before the 1988 managerial restructure. Nearly a third (31.6%, $n = 6$) of these dogs were returned - one before and five after the restructure. Three of the six dogs returned and two that were not returned were considered mismatched. Of the dogs ($n = 90$) that were matched in New Zealand after the restructure, 36.7% ($n = 33$) were returned. Of the 33 dogs returned, 19 were deemed mismatched, and six dogs that were considered mismatched were not returned. Therefore, a comparable majority of dogs (73.7% and 72.3% respectively) were successfully matched before and after the managerial restructure, as were the number of dogs retained (68.4% and 63.3%). However, although the same percentages of dogs were returned before and after the restructure, only one (5.3%) of the 19 dogs matched pre restructure was returned prior to 1988.

Table 7.23. The handlers' (n = 87) views on why a match was successful

Why Match was Successful	%
Compatibility - specific categories	
W / B	
Compatible re. work behaviour - well trained; trustworthy re. specific guiding tasks	25.3
Adaptable; capable	14.9
Dog willing to work; seems to enjoy working	10.4
Dog had potential to improve as a guide	10.4
Dog was trained in handler's environment - already familiar with routes	3.5
NW / B	
Compatible re. non-work behaviour (home; social; children; other pets)	14.9
Dog had appealing character (quirky; funny; loveable; gentle; cool)	8.1
W / P	
Size, gait, strength	5.8
NW / P	
Looks; tactility; hair shedding	8.1
Compatibility - miscellaneous/overlapping categories	
Totally compatible (W / B, NW / B, W / P and NW / P)*	69.0
Handler committed to making it work - time; energy**	40.2
Received the type of dog that was needed/requested/RNZFB's GDS had right dog at right time	34.5
Strong emotional bond between handler and dog***	19.5
Two-way partnership - give and take on both sides	17.2
Handler firm and fair/consistently in control/pack leader	14.9
Received strong support from the RNZFB's GDS	13.8
'Soul-mates' - handler and dog's needs/thinking coincide	12.6
Handler empowered by having input into matching decision	12.6
Liked a particular breed/trusted breeds' behaviour	10.4
Dog complimented, not mimicked, the handlers' personality	6.9
Handler did not have high expectations/did not ask too much of dog	6.9
Handler experienced - knew how to deal with situation	6.9
Handlers' affinity with animals	5.8
Mature dog - skilled as experienced guide	5.8
Dog had similar traits to previously successfully matched dog	4.6
Dog was matched for the dog's needs - not for the handler's needs	1.2
Handler had good relationship with puppywalkers - helped with teething problems	1.2
Handler felt obligated to make the match work as the dog had nowhere else to go	1.2
Handler put dog's needs over own	1.2
Dog was well puppy walked/well socialised	1.2

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for all categories*; second most often cited**; third most often cited***.
Key: B = Behavioural; P = Physical; W = Work; NW = Non-Work.

Concerning the 7.6% (n = 9) of the dogs in the sample that were matched overseas, 44.4% (n = 4) were returned. Only one of the nine dogs matched overseas was considered to have been mismatched, and this dog was returned. Therefore, 88.9% of overseas matches were successful and 55.6% were retained.

7.20 Reasons for Successful and Unsuccessful Matches

The handlers (N = 118) summarised why they felt the match with each of their dogs was successful or unsuccessful (mismatched) (Table 7.22). Hence, 73.7% (n = 87) of handlers commented on the 'secret of their success' and 26.3% (n = 31) explained why the match did not work. These comments are shown in Tables 7.23 and 7.24 respectively. The responses have been categorised into compatible (Table 7.23) and incompatible (Table 7.24) behavioural or physical attributes concerning work or non-working issues. In addition, a miscellaneous category was included in both tables for responses than encompassed more than one classification. The handlers also rated the three most important reasons leading to the success and/or failure of the match, which are denoted in the tables with one, two or three asterisks in decreasing order of importance.

Most of the beliefs concerning why matches were successful (Table 7.23) were in the 'miscellaneous' section followed by 'working behaviour'. The comment considered most important for the majority of handlers was that the dog was compatible with the handler in every aspect of the relationship, that is, suitable as a working dog and as a pet. The second and third most important reasons were that the handler was committed to making the match work and was prepared to put in the necessary time and energy to achieve this goal, and that an emotional bond should exist between handler and dog.

Most of the views on why matches did not work (Table 7.24) also fell into the 'miscellaneous' category followed by 'working behaviour'. The three opinions considered most important were that prior to being matched the dogs were not well trained, not well socialised and that not enough care had gone into ensuring that the handlers' and dogs' personalities and lifestyles were attuned. Lifestyle mis-matches in this sample included the matching of an attention seeking dog with a new mother, a cat obsessed dog with a cat lover, a dog not socialised to farm animals with a rural dweller, and an exuberant dog with a person with low energy.

Table 7.24. The handlers' (n = 31) views on why a match was unsuccessful

Why Match was Unsuccessful	%
Incompatibility - specific categories	
W / B	
Not well trained dog - inconsistent; handler felt disenfranchised as dog in control *	51.6
Dog not willing to work - high self-interest; wanted to be a pet only	22.6
No trust in dog to be a safe/effective mobility aid (no bond)	16.1
Dog should have gone to an experienced/strong handler	16.1
Dog could not cope with demands of guiding - anxious; not adaptable	6.5
NW / B	
Lifestyle mismatch***	22.6
'Lady's dog' matched to a man (dog preferred women) (no bond)	12.9
W / P	
Health; strength; size	22.6
NW / P	
Breed; age; hair shedding	19.4
Incompatibility - miscellaneous/overlapping categories	
Did not receive the type of dog that was needed/requested	29.0
Personality clash (anxious dog to anxious person; sensitive dog to dominant person)***	22.6
Totally incompatible (W / B, NW / B, W / P and NW / P)	19.4
Lack of support from the RNZFB's GDS	19.4
Should have been matched to someone with partial vision - taking advantage at home/work	19.4
Handler not committed to making match work	16.1
Dog was not well socialised - aggressive/suspicious of people/other dogs at home/work**	16.1
No bond - handler not emotionally attached to dog and vice-versa	16.1
Handler felt mislead - not fully informed by the RNZFB's GDS of dogs' history	12.9
Politics - dog only matched to boost numbers	6.5

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for all categories*; second most often cited**; third most often cited***.
Key: B = Behavioural; P = Physical; W = Work; NW = Non-Work.

Almost all of the handlers who regarded their dogs as mismatched conceded that some aspects of the match were good. For example, a dog deemed mismatched for poor work may have shown good home and/or other social behaviours. The same principle holds true for successful matches, where few handlers claimed to have had a perfect dog.

7.21 Rematched Dogs

Just over a third (34%) of the 50 participants had used, or were using, dogs that had previously been used by at least one other handler. This scenario is common as dogs are returned to the RNZFB's GDS for a variety of reasons that does not preclude them from being rematched to other handlers. These reasons include ill health of person, emigration, and changes in mobility needs and/or family dynamics (S. Bruce, Education and Training Manager, RNZFB's GDS, personal communication, March 2000).

The majority (84%) of participants said that they were or would be content to be matched with a 'pre-used dog', although caveats included "it is OK, as long as you know the dog's history" and "people need to know that it may take longer to bond [with the dog]." Some participants preferred pre-used dogs, as these dogs tended to be more mature and therefore less rambunctious than dogs fresh out of training, or "had been round the block and knew a thing or two about guiding". The 16% of participants who stated they would not be happy if offered a pre-used dog were concerned that the dog may be more likely to have behavioural problems or take longer to adjust to a new home/working environment.

Twenty (17.2%) of the 118 dogs in the sample had been returned to the RNZFB's GDS by their previous handlers, and were rematched to the 34% of participants (n = 17) who had used one or more of these dogs. Ultimately, 15 of these 20 re-matches were successful. However, according to the participants in this study, four of these 15 dogs did not have a successful partnership with the first handler they were rematched to, but did on a subsequent match, and three of these 15 dogs had the opposite experience. Of the five dogs that were not rematched successfully, three were eventually withdrawn; one for extreme excitability, one for marked aggression to other dogs, and one for a severe musculo-skeletal problem. The other two dogs that were not rematched successfully, although currently working, were being considered for return, as one

Table 7.25. Issues regarding the end of the handler-dog partnership (n = 116) for each dog and in the sample overall (O/all)

Issues	Dog 1 (n=50)	Dog 2 (n=31)	Dog 3 (n=14)	Dog 4 (n=8)	Dog 5 (n=5)	Dog 6 (n=4)	Dog 7 (n=2)	Dog 8 (n=2)	O/all (n=116)
End of partnership (%)									
Retrospective response - real experience	72.0	61.3	57.1	75.0	100	75.0	100	0	68.1
Projected response - hypothetical experience	28.0	38.7	42.9	25.0	0	25.0	0	100	31.9
Dogs' fate (%)									
Retired - family	6.0	0	7.1	12.5	0	0	0	0	4.3
Retired - friend	16.0	9.7	7.1	0	0	25.0	0	0	11.2
Retired - RNZFB home	16.0	16.1	7.1	12.5	0	0	0	0	12.9
Returned - rematched	6.0	25.8	21.4	25.0	80.0	75.0	0	0	19.8
Kept as pet by handler	32.0	29	42.9	37.5	20.0	0	0	100	31.9
Returned - RNZFB's home	4.0	3.2	7.1	0	0	0	50.0	0	4.3
Returned - new career	0	3.2	0	0	0	0	0	0	.9
Deceased/euthanasia	20.0	12.9	7.1	12.5	0	0	50.0	0	14.7
Kept in touch - if possible (%)	90.0	67.7	85.7	50.0	40.0	25.0	50.0	100	75.9
Feelings* (%)									
Grief - extreme	74.0	35.5	64.3	12.5	20.0	25.0	100	50.0	54.3
Grief - somewhat	24.0	45.2	21.4	62.5	20.0	0	0	50.0	31.0
Neutral	2.0	6.5	7.1	0	0	0	0	0	3.5
Relieved	6.0	16.1	7.1	25.0	60.0	75.0	0	0	14.6
Angry with RNZFB's GDS	16.0	22.6	28.6	37.5	60.0	25.0	0	0	22.4
Shocked to 'fail'	6.0	12.9	7.1	62.5	20.0	25.0	0	0	12.9
Guilty	30.0	9.7	7.1	0	0	0	50.0	0	17.2
Accepting	44.0	61.3	85.7	62.5	40.0	0	0	50.0	52.6
Reassured re. pet home	84.0	58.1	85.7	100	40.0	0	0	50.0	71.6
Worry re. mobility	8.0	9.7	7.1	0	20.0	0	50.0	50.0	9.5
Resentful/denial	6.0	3.2	14.3	0	0	0	0	0	5.2
Lost self-esteem/confidence	2.0	3.2	0	0	0	0	0	0	1.7
Time 'put off' applying for a replacement dog (%)									
No time	78.0	67.7	92.9	87.5	80.0	75.0	50.0	100	77.6
Up to 3 months	10.0	12.9	0	0	0	0	0	0	7.8
3 - 6 months	4.0	6.5	0	0	0	0	0	0	3.5
6 months - 1 year	0	3.2	0	0	0	0	50.0	0	1.7
2 - 5 years	4.0	0	0	0	0	0	0	0	1.7
Indefinitely	4.0	9.7	7.1	12.5	20.0	25.0	0	0	7.8
Rematched dogs (%)									
Successful	2.0	19.4	14.3	12.5	80.0	50.0	N/a	N/a	13.8
Unsuccessful	2.0	6.5	0	12.5	0	0	N/a	N/a	3.4
Unknown/hypothetical	2.0	0	7.1	0	0	25.0	N/a	N/a	2.6

No missing responses.
*Concerning 'feelings' total percent does not add to 100, due to open-ended questions/multiple responses.
N/a = not applicable.

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exhibited the same problem that its previous handler returned it for (scavenging) and the other developed an unrelated health issue (skin problem).

7.22 The End of the Partnership

Of the 118 handlers, 66.9% (n = 79) had experienced the end of at least one partnership with a guide dog. These handlers retrospectively rated their experiences in terms of (a) what became of the dog (the dog's fate), (b) the handler's feelings when the partnership ended and (c) how this affected their application for a subsequent dog. Of the 39 handlers (33.1%) who were currently using a dog, 37 (31.4%) supplied prospective answers, as they expressed strong desires to the researcher to project how they might feel about these issues at the time when the partnership ends. The two handlers who declined to project their responses did so as one felt it was too early in the relationship to comment and the other did not want to think about the partnership ending. This resulted in over two thirds (68.1%, n = 79) of 116 handlers supplying *actual* data and the remainder (31.9%, n = 37) hypothesising what they firmly believe will be the outcome. The results of these retrospective and projected responses are displayed in Table 7.25 and are summarised in the following sections as if all the data had been collected retrospectively, that is, written in the past tense.

7.22.1 Fate of the dog

Under a third (31.9%) of the 116 dogs were kept as pets by their handlers when the working partnership ended[10] (Table 7.25). In addition to those dogs kept as pets by their handlers, 28.4% were retired, from which 12.9% were rehomed by the RNZFB's GDS, 11.2 % went to a friend and 4.3% to a family member of the handler. A quarter of the dogs was returned to the RNZFB's GDS. Of the dogs returned, 19.8% were rematched with another person, 4.3% were withdrawn from the guide dog programme and were rehomed by the RNZFB's GDS, and one dog (.9%) had a successful 'change of career' with another New Zealand working dog programme. The remaining 14.7% of dogs died of old age, underwent euthanasia for health problems or had a fatal accident before reaching retirement.

[10] According to some participants in this study, before 1988 the RNZFB's GDS regulations did not always permit handlers to apply for a replacement dog if they kept a retired guide dog as a pet, nor was contact between the former handler and the person/family that adopted a retired guide dog allowed.

The majority of the 116 handlers (75.9%, n = 88) kept in touch with their dogs once the partnerships ended, or would have if contact had been possible or permitted at the time.

7.22.2 Feelings at the end of the partnership

At the end of the partnership more than half the 116 handlers (54.3%) expressed feelings of extreme grief, likened to losing a family member or other loved one (Table 7.25). Under a third of handlers (31%) grieved to a moderate extent, a few (3.5%) claimed to feel neutral, and 14.6% mainly felt relief at this time. All those who felt relieved (n = 17) were commenting on dogs that they had been mis-matched with. However, relief did not necessarily imply a lack of distress. Grieving was not limited to the handlers; most of those expressing profound grief said that their family members and some work colleagues who had spent a lot of time with the dog also suffered a loss.

Of the 54.3% of handlers (n = 63) who expressed feelings of extreme grief at the end of the partnership, most (42.9%, n = 27) of their dogs were rehomed, over a quarter (27%, n = 17) had experienced the death of a working dog (i.e. all the dogs in this category), around a fifth (20.6%, n = 13) kept their dog as a pet, and 9.5% (n = 6) were returned and rematched to another handler.

Just over half of the 116 handlers (52.6%) accepted when partnerships ended, as they had enjoyed a successful relationship and/or understood the reasons for an early withdrawal, and/or needed another dog. Others felt angry with the RNZFB's GDS (22.4%), guilty (17.2%), or shocked to have "failed" (12.9%). Feelings of anger were expressed because handlers' felt that they had not been supplied with a suitable dog in the first place and/or were not fully informed when a dog had a problematic history. Other reasons for wrath at this time came from handlers who felt abandoned when their partnerships ended because of the dogs' ill health, due to a lack of emotional support from the RNZFB's GDS. Guilt was manifested not only because the 'old' was given up for the 'new'; in some cases where dogs had died handlers felt guilty that the dog had not enjoyed retirement, and where dogs were returned some handlers felt that it may have been their or their families' fault. 'Failure' had not been an option considered by those who were shocked when their relationship did not work out necessitating in the return of the dog, and 1.7% of handlers experienced a loss of self-esteem and confidence when these partnerships ended.

Acknowledging that the working relationship was over was easier for the majority (71.6%) of handlers if they knew the dog was going to a good home. This was especially true if the dog was being ousted regarding work, or was being kept as a pet. Around a twentieth (5.2%) of handlers found the situation very hard to accept, and resented and in some cases denied that the dog was getting too old to work. Loss of mobility was a concern for nearly one tenth (9.5%) who worried about losing their freedom and independence.

Some of the trends in the handlers' feelings about their different dogs at the end of the partnership, as shown in Table 7.25, will be discussed in Chapter 10, section 10.5.

7.22.3 Application for a replacement dog

Overall, the end of a relationship did not put handlers off wanting to apply for another dog immediately in 77.6% of the 116 cases (Table 7.25). However, 7.8% of handlers were put off indefinitely and the remainder (14.7%) chose to wait from a couple of months up to five years. Most of the handlers who had experienced a mismatch and who had applied for a replacement stated that they were optimistic about getting a better dog next time.

Those who applied immediately had wanted guide dog assisted mobility as soon as possible and/or had kept their previous dogs as pets. For most (69.8%), this was the right decision even if they had experienced an unsuitable dog, but 7.7% regretted not taking some time to come to terms with the loss of their previous dog before acquiring its replacement. Those who thought that they would never get another dog stated that they had not and did not expect to get over the loss of their previous dog and/or they did not wish to repeat the painful experience of receiving an unsuitable dog. Although, one handler who felt this way declared that the RNZFB's GDS had "forced" another dog on her, which she was ultimately grateful for as it turned out to be a very good match. The handlers who chose to wait some time before requesting another dog did so as 8.1% needed some time to grieve, 3.4% wanted a break from the responsibilities of having a dog, and 3.4% had temporary changes in personal circumstances such as increased social support or an alternative means of transport.

At the time of the interview, 92.9% (n = 13) of the 28% (n = 14) of participants who were currently using their first dogs envisaged continuing to use guide dogs in the future, and the other said he or she would consider it. Of the participants overall (N = 50), 78% predicted using another guide dog at some point, 16% did not and 6% would consider it. Of the 78% who wished to use another dog, 22% did so solely because they preferred a dog to a long cane as a mobility aid, while 56%, who also preferred the dog to the long cane, gave equal importance to the companionship and social interactions that the dog provided. Reasons given for the 16% not envisaging the use of a dog in the future included: limited workload (6%), family pressure (4%), not having a trusting relationship with the RNZFB's GDS (4%), and an unsuitable living environment (2%). The 6% that were undecided were (a) enjoying a break from dog ownership (2%), (b) worrying that he or she may receive another unsuitable dog (2%) and (c) were neutral with regards to long cane use versus dog (2%).

At the time of the interview, over a fifth (22%) of participants (N = 50) were on the RNZFB's GDS' waiting list for a replacement dog. Of those on the list, 12% had dogs that were nearing retirement age, 8% did not have current dogs, and one person (2%) was awaiting a replacement for a 'temporary' dog. The 78% of participants who were not on the waiting list comprised of 52% who were happily using their current dogs, 10% that were debating returning their current dogs (Table 7.21), and 16% who had previously used a dog/s and decided not to use another, as described in the previous paragraph.

7.22.4 Relationships with subsequent dogs

These 116 handlers were asked how the end of the partnership with the previous dog influenced (or would influence for the 31.9% (n = 37) of current handlers in the analysis projecting their responses) the relationship they had with a subsequent dog. Most 31.9% (n = 37) of these handlers expressed a negative effect in that the old dog was considered to be a better mobility aid, less puppy-like in general and that the memory of the old dog inhibited bonding with the new; the latter being reason enough to put a small number of handlers off acquiring a replacement dog indefinitely. However, 28.5% (n = 33) explained that new dogs were not compared to old, but were appreciated as individuals despite the handlers' feelings of bereavement, and less than a quarter (23.3%, n = 27) indicated that there was no effect. Some handlers (13.8%, n = 16) thought that the end

Table 7.26. The participants' (N = 50) comments on how being without a guide dog after experiencing guide dog assisted mobility affected quality of life

Effect on Quality of Life	Comments	%
Reduced	Loss of independent mobility*	68.0
	Loss of friend/companion**	46.0
	Loss of self-esteem/confidence	14.0
	Curtailing of social function/interactions***	12.0
	Concern regarding when dog will be replaced	12.0
	Feelings of failure re mis-match/guilt at giving up dog	6.0
	Loss of income when performing (singing)	2.0
Neutral	Handler's decision - change in circumstances/mobility needs	10.0
	No effect - good cane traveller and not very attached to dog	4.0
Increased	Appreciated a break from responsibilities of dog ownership	6.0
	Return of unsuitable dog liberating	4.0
	Long cane skills improved	4.0

Total percent does not add to 100, due to open-ended questions/multiple responses.
The item most often cited as being of greatest importance for all categories*; second most often cited**; third most often cited***.

Table 7.27. The participants' (n = 31) suggestions for novel guide dog training tasks concerning work and non-working issues

Suggestions for Novel Guide Dog Training Tasks	%
Work related	
Not to toilet when working	19.4
Travel on escalators	12.9
Indicate pole at traffic crossings	6.5
Avoid overhead obstacles	6.5
Recognise and associate commands with destinations	6.5
Not be coprophagous	6.5
Consistently stop at steps	6.5
Ignore other dogs when working	6.5
Walk around puddles	3.2
Make traffic decisions	3.2
Adapt speed to cope with baby	3.2
Non-work related	
Retrieve objects; find lost items; alert to knock on door or ringing phone	25.8
Socialise dogs to novel situations (e.g. going to the veterinarian)	9.7
To toilet on any substrate - on or off the lead	9.7
Not to jump up on people or objects	6.5
Protective barking to strangers when at home	6.5
Not to lie in doorways as easily tripped over	6.5
Improve recall when dog free-running	6.5
Not be aggressive to other pets such as cats and birds	6.5
Drink out of water bottle as more portable than bowl	3.2

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

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of a partnership influenced the next one in a positive manner such as knowing what to expect through experience and realising that the new dog was an improvement over the previous one. The other 2.6% (n = 3) of handlers commented that they either wanted or did not want certain breeds due to breed-specific behaviours. For example, fawning and scavenging of the Labrador retriever put some off, while another resolved to have nothing but a Labrador retriever after experiencing an exotic type such as a "Standard poodle with its head on a swivel".

7.22.5 Post guide dog assisted mobility: effects on quality of life

Of the 50 participants, 72% had experienced either being without a guide dog temporarily (i.e. between the end of one partnership and the instigation of a new one) or permanently having decided not to use another dog. These participants were asked to comment, in order of importance, how the absence of the dog affected their quality of life in general. The remaining 28% of participants who had not yet experienced being without a dog also wished to have their expected feelings documented and vehemently believed these feelings were anticipated accurately. Therefore, they were asked how they might feel at this time. All responses (retrospective and prospective) have been summarised as if the data had been collected retrospectively, that is, written in the past tense (Table 7.26). As for previous analyses, the asterisks represent the responses that most participants felt were the three most important.

The majority of comments indicated that quality of life was reduced when participants were without a dog having had experienced guide dog mobility, mainly due to a reduction in independent mobility (68%) followed by losing a friend and companion (46%). Quality of life had increased for those who enjoyed a break from the responsibilities of looking after a dog (6%), did not have to deal with an unsuitable dog (4%), and for those whose long cane skills improved through the opportunity to practise (4%). The remaining comments indicated that quality of life did not change for those whose circumstances and/or mobility needs had altered and therefore the dog was no longer required (10%), and for those who were good cane travellers and were not emotionally attached to the dog (4%). The items that were of first, second and third importance concerning effects on quality of life were: loss of independent mobility, loss of a friend and companion and the curtailment of social interactions respectively.

Table 7.28. The participants' (N = 50) suggestions for improving the matching process

Suggestions for Improving the Matching Process	%
No/very few improvements necessary; felt listened to; well informed; involved; happy with process	50.0
No suggestions, as don't know enough about it	36.0
More emphasis on matching the dog to the person's personality	28.0
Honesty regarding a dog's history of health and/or behaviour problems	22.0
More attention to social-behaviour (e.g. do not give a dog with poor office behaviour to an office worker)	22.0
Trainee instructors should not make matching decisions, nor train the handler-dog team	16.0
The RNZFB's GDS should withdraw dogs if dogs are unsuitable and not try to match every dog available	16.0
Matching process never stops - constant give and take from the handler and the dog	14.0
Applicant should be more involved in whole decision making process/better communication	12.0
Standardisation across regions (e.g. all applicants should be video-taped prior to matching)	12.0
Interview should be more detailed - instructors need to know the applicant very well	12.0
Matching should be broadly sound, but up to client to fine-tune the dog to his or her specific needs	12.0
Control breeding - too many breeds/variations in character; health problems; too big; too mentally sensitive	12.0
Dogs should not be matched until they are fully trained	10.0
Dogs should not be matched to people who cannot control them - physically and by voice	10.0
Applicants should meet/try dogs before they are matched to them	10.0
The RNZFB's GDS should explain more about inherent, breed specific characteristics/behaviours	10.0
Before matching clients should have good O&M skills, be highly motivated and be adjusted to vision loss	10.0
Match for non-mobility needs (e.g. give an adaptable dog to a new parent)	8.0
Not everyone who applies for a dog can or should be matched	8.0
Match for physical needs such as fast dog to fast person, big dog to tall person, strong dog to strong person	6.0
Panel of experienced handlers should 'road-test' dogs prior to the dogs being matched	6.0
More consideration should be given to other pets	6.0
If handler has had a successful match, replace with a dog that has similar traits	6.0
The RNZFB's GDS should advice family members to remain 'distant' until the handler-dog team bond	6.0
Matching would be more successful if the person has had a pet dog or is used to dogs	6.0
Provide a fact sheet to minimise unrealistic expectations (e.g. that it is the dog that makes traffic decisions)	6.0
Concentrate on mobility needs, as mobility is the most important issue	4.0
The RNZFB's GDS should furnish handler with written commands that the particular dog understands	4.0
Lessen pressure on staff by conducting more matching meetings, with less dogs being matched	4.0
Transfer respect from trainer to handler quicker	2.0
Give Labrador retrievers to first-time handlers and exotic breeds to more experienced handlers	2.0
The match would work better if the handler was the dog's legal owner	2.0

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

7.23 Service Delivery

The following and final section in this chapter presents the results of participants (N = 50) being asked about the services that they receive/d from the RNZFB's GDS and how these services may be improved. Opinions were also sought on legal ownership of guide dogs, as this issue was of interest to the guide dog industry[11].

7.23.1 Satisfaction with service

Participants rated, on a continuous scale from 1 to 10, how satisfied they were with the services they had received from the RNZFB's GDS to date. With 1 on the scale being 'not at all satisfied' and 10 being 'completely satisfied', the mean response of 8.16 (SD = 2.14), indicated a high level of satisfaction overall.

7.23.2 Suggestions for novel guide dog training tasks

In addition to the level of work experienced, 62% of participants mentioned certain tasks that they would like their dogs to be trained to do for them, and the 38% abstaining believed that the dogs were already trained to do what was required. The suggestions for novel guide dog training tasks, which pertain to work and non-work related issues, are shown in Table 7.27. The most frequent response (25.8%) was extraneous to guiding work, that is, that dogs be trained to act like 'mobility assistance dogs' and 'hearing dogs for deaf people'. Many of the work-related suggestions, including travelling on escalators, not to toilet when working, avoidance of overhead obstacles and other mobility-related tasks are part of the normal guide dog training regime. However, these skills were apparently not part of the relevant dogs' repertoire.

7.23.3 Suggestions for improving the matching process and other services

The participants' suggestions for ways that the RNZFB's GDS might improve the matching process, and its services in general are shown in Table 7.28 and 7.29 respectively. Miscellaneous comments on guide dog usage are displayed in Table 7.30.

The outcome, as shown in Table 7.28, appears to be that around half of the participants were happy with the matching process and that little, if any, improvements were

[11] The findings on ownership were submitted to the RNZFB's GDS for consideration concerning the current policy change that provides the handlers with the option of legal ownership one year after graduating with their dogs.

Table 7.29. The participants' (N = 50) suggestions in which the RNZFB's GDS might enhance its services in general

Suggestions for Ways that the RNZFB's GDS might Enhance its Services	%
No/very few improvements necessary; doing good job; improvement on old system	42.0
Listen and act on handlers' wishes more - improve communication and follow-up	32.0
Accept the dog may have faults and refrain from blaming or patronising the handler	28.0
Puppy walkers should be alert to 'blind issues' concerning the dogs - toileting; socialising; diet; hazards	28.0
Quality not quantity - the RNZFB's GDS should remember it is a service for blind people, not a business	24.0
Accept when dogs are returned for being unsuitable - should be no pressure to retain; fear of retribution	22.0
Do not give dogs and abandon handler - instructors should take a more personal interest in clients	14.0
Staffing issues - more qualified and trainee staff required; staff should be sensitive and caring	14.0
Contact with puppy walkers should be encouraged and facilitated	14.0
A grief counselling service should be available to handlers and puppy walkers	14.0
More support required for handlers with special needs or emotional/financial problems	12.0
In the event of a complaint from the public, hear the handlers' story and deal with unsubstantiated claims	10.0
More information on the dog's history (pedigree, health, trainer, puppy walker etc.) should be available	10.0
Shorten the waiting list - suggestion: do not send trained dogs overseas until the NZ waiting list is cleared	10.0
Dogs with recurring problems should be withdrawn, not recycled	8.0
Train dogs to be well behaved socially (including not toileting on walks), as much as for mobility tasks	8.0
Blind people should have more input in training blind people	6.0
Blind people should puppy walk own dog	6.0
Provision of a regular newsletter with current information on health, travel issues, mobility techniques etc.	6.0
Policies such as the hardship fund and overseas travel should be abided by consistently across regions	6.0
Regular refresher courses for all handlers should be provided and easily accessible	4.0
Improved communications between the RNZFB's GDS and guide dog support groups	4.0
Handlers to be allowed to retain their old dogs' equipment - collar/tags etc.	4.0
Follow-up visits should be anonymous to see the 'real' dog, and to reduce test-taking nerves	2.0
Organise more social events for handlers and dogs	2.0
Pass legal ownership to the handlers	2.0
Refresher training adequate for experienced handlers (not several weeks away from home)	2.0
More males should be involved with puppy walking/training, as the dogs are oversensitive to gruff voices	2.0
Provision of free, direct dial to instructors mobile telephones	2.0

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

necessary. However, over a third (36%) felt that they were not equipped to make suggestions as they did not know enough about the matching process. Other suggestions pertaining to matching include the need for more attention to non-mobility areas such as personality factors of person and dog (28%) and social behaviour (22%). Suggestions that illustrate the latter situation include the provisos that an office worker not be given a dog with poor office behaviour, and someone who lives rurally not be given a dog that is suspicious of livestock. Concerning the enhancement of services in general (Table 7.29), the highest percent of participants (42%) felt that the RNZFB's GDS were doing a very good job. This was followed by 32% requesting that they be listened to more effectively, not be blamed or patronised for something that the dog may be at fault for (28%), and that there be no pressure to retain a dog that the handler wants to return (22%). The main miscellaneous comment that was made (28%) pertained to guide dog usage being a two-way relationship and therefore the handler should be prepared to be flexible in order to have a successful partnership (Table 7.30). Some of the ideas overlap, for example, the suggestion that the RNZFB's GDS' clients be more involved in the matching process, or that communication between the RNZFB's GDS and their clients be improved are recurring themes.

7.23.4 Ownership

If given the choice, 38% of participants said that they would prefer to be the legal owner of their guide dog, as opposed to the dog being the official property of the RNZFB, while the remaining 62% were happy with the way things were, or had no preference.

The reasons for participants wanting legal ownership were mainly so that the dog could not be taken away from them, and that no RNZFB's GDS' rules could be imposed. However, it was recognised by half of those preferring ownership that the dog still required protection of its welfare and the handler required the RNZFB's and professional guide dog support when necessary. Other reasons given in favour of legal possession included wanting a 'sense of ownership', that it was stressful being accountable for someone else's dog, and that matches may work better if the handler is responsible for the dog. The main reasons given for not coveting ownership were that the dog required protection of its welfare and that the safety of the handler should not be compromised. One tenth of participants were concerned that the monetary costs invoked by legal ownership may be too high.

Table 7.30. The participants' (N = 50) miscellaneous comments on guide dog usage

Miscellaneous Comments on Guide Dog Usage	%
Guide dog usage is two-way relationship - the handler needs to give and take	28.0
Good to have the opportunity to talk about guide dog usage - cathartic; enjoyable; valid source of information	20.0
Bonding is vital for a good working relationship - the handler should love his or her dog	14.0
Getting a dog was the best thing the handler ever did; wished he or she had done it sooner	14.0
The RNZFB's GDS requires more support from the RNZFB to keep up the great enterprise	10.0
If a problem arises, both the handler and the RNZFB's GDS should be responsible for solving/dealing with it	10.0
Dogs should be retired while they are still young enough to enjoy it	8.0
Media should not venerate dogs, as this leads to the handlers and the public having unrealistic expectations	8.0
Often-times, the dog exhibits more problems after 10 to12 months of use compared to 3 to 6 months	8.0
Handlers should trust their dogs when it makes a travel-related decision, as it will be correct 99.9% of the time	6.0
Dogs' names should be clipped and easy to say with authority	6.0
Good social behaviour and the provision of companionship become more important than mobility as dog ages	6.0
Being in charge of 'someone else's' special, expensive dog is a big responsibility	4.0
The handlers should appreciate that instructors have a tough job, and that it is easy to burn out	4.0
A mis-matched dog reflects badly on the handler, even if it is not the handler's fault	4.0
The RNZFB's GDS should lobby for tax-free benefits that other working dogs get such as food; health; quarantine	4.0
"Will never get another dog like the previous one" - previous dog is irreplaceable	4.0
If 'X' dog had been the handler's first dog, he or she would not have applied for a replacement, as 'X' so bad	4.0
There have been major improvements re. the publics' acceptance of guide dogs compared to the early days	2.0
The RNZFB's GDS should be proud to withdraw unsuitable dogs, as this shows they care about quality	2.0
RNZFB board members should be good at their jobs, and not appointed because of being blind	2.0
Handlers should be allowed to tether their dogs outdoors	2.0
The RNZFB should install dog runs in the ground floors of all their buildings	2.0
A guide dog provides 'pet facilitated therapy' for all family members	2.0
Dogs provide few perfect years as a mobility aid (i.e. age 5 to 7 - between puppyish behaviour and old age)	2.0

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

This chapter has provided a detailed description of the study population on many of the key areas arising from the literature, ethnographic fieldwork and the focus group, as described in Chapter 5. Inferential statistics will be used in the next three chapters (Chapters 8 - 10) to address the remaining research questions portrayed in Chapter 5, and to report on trends emerging from findings in the present chapter.

Table 8.1. Non-visual visual conditions restricting the participants' ($N = 50$) independent travel

Non-Visual Condition	%
None	66
Hearing loss	12
Arthritis	6
Repetitive strain injury of wrist caused by use of a long cane	6
Asthma	4
Head injury	2
High blood pressure	2
Unsteady gait	4
Anxiety	2

No missing responses.
Total percent does not add to 100, due to open-ended questions/multiple responses.

8
The Survey
Results 2 - Travel

Preliminary results of this study were presented and published at the 1st Australasian Orientation & Mobility Conference, Adelaide, South Australia (Lloyd, La Grow, Budge & Stafford, 2001), and a concluding manuscript (Lloyd, La Grow, Stafford & Budge, 2004) has been submitted for publication in a scientific journal. A copy of the former paper can be found in Appendix D.

This chapter presents the results derived from the travel (mobility) section of the survey questionnaire (Appendix A, Section 4). The travel habits of the 50 participants before and after they acquired a guide dog are reported, and the null hypothesis that that there is no positive relationship between the participants' perceptions of their travel performance and the use of guide dogs is tested. The chapter concludes with a comparison of the advantages and disadvantages of dog-assisted mobility to other mobility aids. The methodology is explained in more detail in Chapter 6, section 6.3.4.

8.1 Non-visual Conditions Affecting Mobility: Before Acquiring and When Using a Dog

Sixty six percent of participants did not have any non-visual conditions that restricted their independent travel (i.e. travel without the help of a sighted guide) while the remaining 34% answered in the affirmative. The type and proportion of these conditions are shown in Table 8.1[1].

Th 34% of participants with the non-visual conditions were asked to rate how much these conditions restricted their independent travel (a) before they received a dog and (b) when they used a dog. Ratings were scored on a continuous 1 to 10 scale, with higher scores indicating greater restrictions. A paired samples t-test found that restrictions in independent travel were significantly less when a dog was used (M = 2.35, SD = 1.00), $t(16) = 5.10$, $p = .001$) compared to before a dog was used (M = 5.94,

[1] The proportion of participants (12%) who had hearing loss as a secondary disability approximates the number of the RNZFB's GDS' clients with this condition (G. Welch, Administration Services, RNZFB's GDS, personal communication, February 2002).

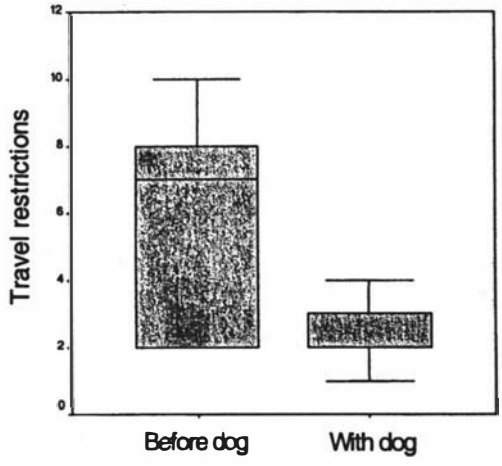

Figure 8.1. Distributions of participants' (N = 50) independent travel restrictions due to non-visual conditions before a guide dog was acquired, and when using a guide dog. Higher scores indicate greater restrictions.

Table 8.2. Mobility aids used by participants (N = 50) before and after receiving a guide dog and which aids were used most often at these times

Mobility Aid	Before Dog (%)		After Dog (%)	
	Aids Used*	Aid Used Most	Aids Used*	Aid Used Most
Long cane	86	62	48	2
Electronic aid	16	0	2	0
Low vision aid	0	0	0	0
Sighted guide	98	30	90	4
No aid used	18	4	8	0
Other - pram	4	0	0	0
Identification cane	4	4	0	0
Guide dog	N/a	N/a	98	94

No missing responses.
*Total percent does not add to 100, due to open-ended questions/multiple responses.
N/a = not applicable.

SD = 2.88). This difference is substantial, as shown by the eta-squared (η^2) statistic of .62, which indicates a large effect size[2]. The distributions for the 10-point summative ratings are shown in Figure 8.1.

8.2 Mobility Aids Used: Before and After Acquiring a Dog

Participants named any mobility aids they used (a) before they acquired a dog, (b) after they acquired a dog and (c) which aid was used most often at these times (Table 8.2).

The majority (86%) of participants used a long cane before receiving a dog, which decreased to 48% once a dog was obtained. Two (4%) of these participants, who used a folding or telescopic long cane before receiving a dog, continued this practice as an adjunct to travelling with their dogs, for example, to detect how steep a drop-off was. Sixteen percent tried an ultrasonic aid (the Mowat Sensor™) before receiving a dog, and one participant continued to use this device after dog acquisition. No one used a low vision aid, such as a monocular distance telescope, before or after receiving a dog. All but one participant (98%) used a sighted-guide before acquiring a dog, and 90% continued this practice after getting a dog. Eighteen percent travelled occasionally without the use of any mobility aids before dog acquisition, and 8% continued this practice after. Two participants used a pram as a mobility aid before receiving a dog, with or without a child in situ, and two participants used an identification cane (a short, white cane that identifies the traveller as being visually impaired); neither of these practices were continued after. No aid and aids other than a dog were used once a dog was acquired if it was more convenient, for example, short journeys that did not seem worth harnessing the dog for such as retrieving the mail from the mailbox at the end of the drive. One participant chose not to use the dog as a mobility aid after it was received, as it was not trusted to be a safe and effective guide.

Before dog acquisition, the long cane was the mobility aid most frequently used by most (62%) participants, 30% preferred to utilise the services of a sighted guide, and 4% the

[2] The effect size statistic (eta-squared) for assessing the magnitude of an effect was interpreted using Cohen's (1988) guidelines, as discussed in Chapter 6, section 6.5.

identification cane. After a dog was received, the most often used aid was the guide dog (94%), followed by two participants still utilising sighted guides and one the long cane.

8.3 Orientation and Mobility Training Received: Before Acquiring a Dog

Participants rated how satisfied they were with the amount and quality of O&M training they received before they acquired a dog on a continuous 1 to 10 scale, with higher scores indicating greater satisfaction. The resulting score (M = 6.70, SD = 3.09), indicated a moderate degree of satisfaction in general.

8.4 Travel Performance: Before Acquiring and When Using a Satisfactory and an Unsatisfactory Dog

Travel performance was measured by asking the participants to rate themselves on the following five independent travel performance indicators (TPIs):

- Orientation skills (O)
- Technical use of mobility aids (M)
- Collective O&M, that is, travel performance (T)
- Difficulties encountered when travelling (D)
- Travel limitations (L).

Of the 118 dogs in the sample, 80.5% were considered to be satisfactory mobility aids and the remainder was not. (It should be noted that 'satisfactory' and 'unsatisfactory' dogs in this section do not necessarily equate with dogs that were successfully or unsuccessfully matched.) Ninety four percent of participants had experienced at least one satisfactory dog, and 32% had experienced one or more unsatisfactory dogs. Hence, the TPIs (dependent variables) were measured under three conditions:

(a) Before participants received a dog (N = 50)
(b) When using dog/s considered to be satisfactory mobility aids (n = 47)
(c) When using dog/s considered to be unsatisfactory mobility aids (n = 16).

If a participant had used more than one dog under condition (b) and/or (c), he or she was asked to answer in as general a fashion as possible for each. Measurements were

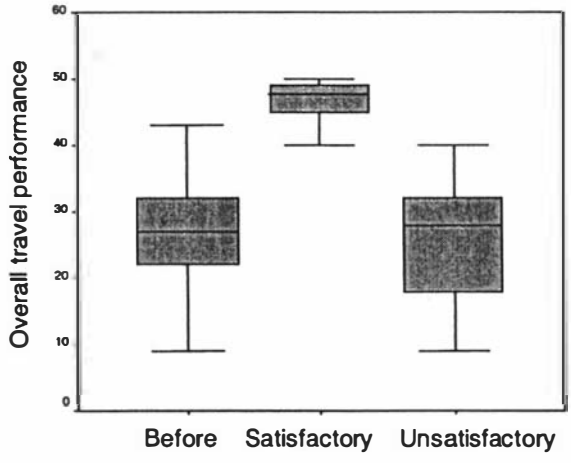

Figure 8.2. Distributions of differences in overall travel performance before a guide dog was acquired, and when using a satisfactory and an unsatisfactory dog aid (n = 13). Higher scores indicate better performance.

Table 8.3. Paired-samples t-tests on mean scores for overall travel performance across the three conditions: before and when using a satisfactory and an unsatisfactory dog

Pair	Overall Travel Performance	*n*	*M*	*SD*	*t*	*df*	Sig*. *p* =	η^2
1	Before dog	47	23.36	10.44	-12.09	46	.000	.76
	When using a satisfactory dog	-	45.51	4.08	-	-	-	-
2	Before dog	16	27.31	10.03	.24	15	.815	.004
	When using an unsatisfactory dog	-	26.81	8.60	-	-	-	-
3	When using a satisfactory dog	13	45.92	3.84	7.71	12	.001	.83
	When using an unsatisfactory dog	-	25.85	8.88	-	-	-	-

* = Bonferroni adjustment for multiple comparisons ($p < .017$).

recorded on a continuous 1 to 10 scale, with higher scores indicating better performance for items O, M and T, and lower scores indicting fewer problems for items D and L.

8.4.1 Overall travel performance

After reversing the negatively worded items D and L, as recommended by Howitt and Cramer (1997), an overall travel performance score (OTP) was calculated by adding the five TPI scores for each of the three conditions, and Cronbach's alpha coefficients were calculated for each of these three measures of travel.

The coefficients for the OTP measures (a) before a dog was used, (b) when using a satisfactory dog, and (c) when using an unsatisfactory dog were .90, .54 and .83 respectively. Nunnally (1978) recommends a Cronbach's alpha value of .70 or greater, but values are often small when there are less than 10 items in a scale. The scales measuring OTP 'before' and 'when using an unsatisfactory dog' show good internal consistency as they are greater than .70. The scale measuring OTP 'when using a satisfactory dog' was less than .70 and therefore a mean inter-item correlation for the items was calculated as an alternative to Cronbach's alpha. The resulting value of .27 falls within the optimal range of .20 to .40 as recommended by Briggs and Cheek (1986). Therefore, all three measures were considered reasonably free from random error and constructed from appropriately linked items measuring the same concept.

Paired-samples t-tests were conducted to evaluate if there were any significant differences in OTP across the three conditions. Despite the likelihood of increasing a Type 1 error by conducting t-tests discretely, this method was chosen over a one-way analysis of variance (ANOVA) that yielded almost identical results; the distributions for which are illustrated in Figure 8.2. The paired-samples t-tests were chosen as larger sample sizes could be used, whereas, only 26% of participants could be included in an ANOVA (i.e. those (n = 13) who had experienced both satisfactory and unsatisfactory dogs). To avoid inflating Type 1 errors, the Bonferroni adjustment technique for multiple comparisons was applied where the alpha level being used to judge statistical significance (.05) was divided by the number of comparisons (three). Therefore, p values of less than .017 were considered significant. Results for the following three paired-samples t-tests are shown in Table 8.3:

Table 8.4. Paired-samples t-tests on mean scores for overall travel performance for the three groups (poor, moderate and good travellers) across the two conditions: before and when using a satisfactory dog

Pair	Overall Travel Performance	*n*	*M*	*SD*	*t*	*df*	Sig.*. *p* =	η^2
1	*Poor traveller (1-4 O&M)*							
	Before dog	16	15.75	6.52	-13.87	15	.000*	.93
	Satisfactory guide dog	16	45.31	4.06	-	-	-	-
2	*Moderate traveller (5-7 O&M)*							
	Before dog	20	27.30	4.17	-13.15	19	.000*	.90
	Satisfactory guide dog	20	44.90	4.06	-	-	-	-
3	*Good traveller (8-10 O&M)*							
	Before dog	11	40.09	3.86	-5.14	10	.000*	.73
	Satisfactory guide dog	11	46.91	4.18	-	-	-	-

* = Bonferroni adjustment for multiple comparisons ($p < .017$).

Pair 1: OTP before and when using a satisfactory dog

Pair 2: OTP before and when using an unsatisfactory dog

Pair 3: OTP when using a satisfactory dog and when using an unsatisfactory dog.

Results for Pair 1 indicated that OTP was significantly better when a satisfactory mobility aid was used compared to before a dog was used. The eta-squared statistic (η^2 = .76) indicted that was a large effect. There was no significant difference in OTP ratings, and the effect size was very small (η^2 = .004) for Pair 2 (i.e. when an unsatisfactory mobility aid was used compared to pre dog assisted mobility). Results concerning Pair 3 show a significant lowering in OTP when an unsatisfactory dog was used compared to a satisfactory one, with the eta-squared statistic (η^2 = .83) demonstrating a considerable effect.

The significant difference found between Pair 1 led to the question of:

Do differences in perceived O&M (item T) performance before a dog was acquired have a differential effect on OTP when travelling with a satisfactory dog?

This was assessed by collapsing the sample into three equal groups depending on their percentile rating of item T when travelling with a mobility aid before a guide dog was acquired (i.e. scores from 1 to 4 = poor T skills, 5 to 7 = moderate T skills and 8 to 10 = good T skills). A one-way multivariate analysis of variance (MANOVA) was used to determine if the groups differed in OTP under each of the two conditions, and additional follow-up tests were conducted utilising paired samples t-tests and Bonferroni adjustments at $p < .017$ to determine if the groups differed from condition to condition.

The results of the one-way MANOVA show that there was a significant difference among the groups on their perception of their OTP ($F(2, 44) = 76.73$, $p = .000$, partial eta-squared = .78) before a dog was acquired, but not when using a satisfactory dog ($F(2, 44) = .89$, $p = .420$, partial eta-squared = .04). The paired-samples t-tests indicate that OTP for all three groups was significantly greater ($t(15) = -13.87$, $p = .000$; $t(19) = -13.15$, $p = .000$; $t(10) = -5.14$, $p = .000$) for a satisfactory dog than before a dog was used (Table 8.4). Those in the 'poor' traveller group having the greatest difference in mean scores, followed by those in the 'moderate' and the 'good' groups (i.e.

Table 8.5. Paired-samples t-tests on mean scores for specific travel performance indicators before and when using a satisfactory dog

Travel Performance Indicators		Before		Satisfactory		*t*	Sig.*	η^2
		M	*SD*	*M*	*SD*		*p* =	
Orientation	(O)	6.72	2.68	8.53	1.53	-3.91	.000	.25
Mobility	(M)	5.23	2.25	9.40	0.83	-12.09	.000	.76
Travel (O&M)	(T)	5.66	2.26	9.40	0.90	-11.51	.000	.74
Difficulty	(D)	4.13	4.13	8.85	2.24	-11.10	.000	.73
Limitation	(L)	4.62	4.62	9.32	2.65	-11.40	.000	.74

$n = 47$, $df = 46$

* = Bonferroni adjustment for multiple comparisons ($p < .01$).

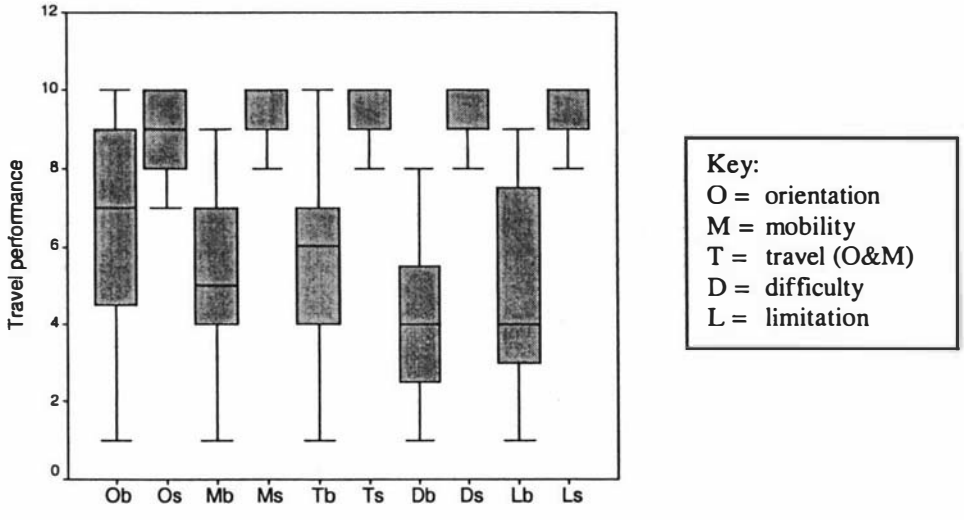

Figure 8.3. Distributions of differences in travel performance for each travel performance indicator before (b) a dog was acquired, and when using a satisfactory (s) dog ($n = 47$).

Table 8.6. Paired-samples t-tests on mean scores for specific travel performance indicators before and when using an unsatisfactory dog

Travel Performance Indicators		Before		Unsatisfactory		*t*	Sig.*	η^2
		M	*SD*	*M*	*SD*		*p* =	
Orientation	(O)	7.31	2.44	5.94	2.67	2.45	.027	.29
Mobility	(M)	5.31	2.47	5.00	1.75	.52	.612	.02
Travel (O&M)	(T)	6.00	2.42	5.38	2.03	1.18	.258	.09
Difficulty	(D)	3.88	2.31	4.81	2.11	-1.32	.206	.10
Limitation	(L)	4.81	2.90	5.69	2.50	-1.70	.110	.16

$n = 16$, $df = 15$

* = Bonferroni adjustment for multiple comparisons ($p < .01$).

approximately +30, +18, +7) respectively. The eta-squared (η^2) statistics indicated large effect sizes for all three conditions.

8.4.2 Travel performance indicators

The five TPIs that comprised OTP before and when using a satisfactory dog (Pair 1, Table 8.3) were examined individually to evaluate any specific differences the dog may make. As the outcome for the discrete t-tests and the ANOVA for OTP were similar, the former method was also conducted for these analyses. Using the Bonferroni adjustment, *p* values of less than .01 were considered significant (Table 8.5). The difference in ratings was found to be significantly higher (better) for all TPIs when a satisfactory dog was used compared to pre dog assisted mobility, even with the more stringent alpha level. The eta-squared statistics indicted a large effect size (>.14) for all indicators, with the strength of association being greatest for the technical use of a mobility aid (M) (η^2 = .76) and the least for least for orientation (O) skills (η^2 = .25). The distributions of the differences in travel performance rating for each TPI before and when using a satisfactory dog are shown in Figure 8.3.

Although the differences in the mean scores for OTP before and when using an unsatisfactory dog (Pair 2, Table 8.3) did not reach statistical significance, a paired-samples t-test was conducted on each of the five TPIs at these times to ascertain what affect any specific TPI may have had (Table 8.6). The difference in ratings for orientation performance was significantly lower (worse) when an unsuccessful dog was used compared to pre dog assisted mobility at the conventional alpha level of .05, however this did not hold true with the new alpha level of .01. Therefore, no significant differences in ratings for any of the travel performance indicators were seen. However large effect sizes were apparent for the differences between the groups for orientation performance (η^2 = .29) and travel limitations (η^2 = .16).

8.5 Travel Frequency: Before Acquiring and When Using a Satisfactory and an Unsatisfactory Dog

As discussed in the method chapter (Chapter 6, section 6.3.4), how often participants travelled was not considered an indicator of travel performance, as there were many aspects involved when making the decision to travel such as work habit's, the weather,

Table 8.7. Paired-samples t-tests on mean scores for travel frequency across the three conditions: before and when using a satisfactory and an unsatisfactory dog

Pair	Travel Frequency	*n*	*M*	*SD*	*t*	*df*	Sig*. *p* =	η^2
1	Before dog	47	5.94	2.54	-8.08	46	.000	.59
	When using a satisfactory dog	-	9.13	1.12	-	-	-	-
2	Before dog	16	6.25	2.54	-2.10	15	.053	.23
	When using an unsatisfactory dog	-	7.50	1.32	-	-	-	-
3	When using a satisfactory dog	13	8.92	1.32	3.74	12	.003	.54
	When using an unsatisfactory dog	-	7.31	1.38	-	-	-	-

* = Bonferroni adjustment for multiple comparisons ($p < .017$).

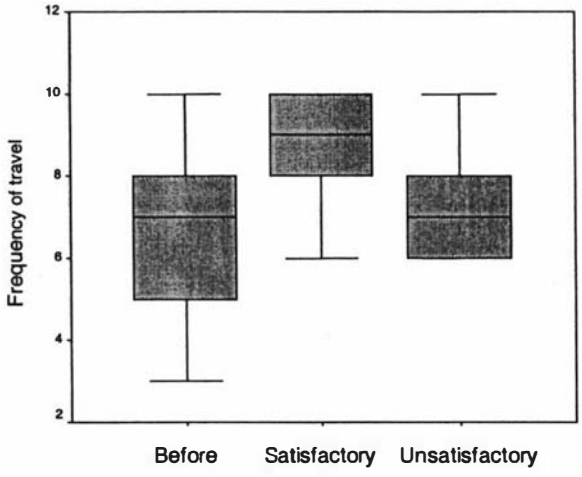

Figure 8.4. Distributions of differences in travel frequency before a dog was acquired, and when using a satisfactory and an unsatisfactory dog (n = 13).

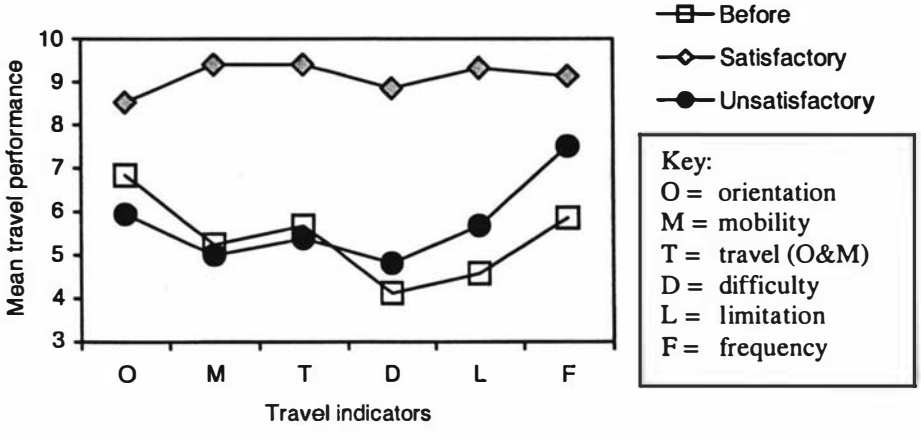

Figure 8.5. A comparison of mean scores for travel performance indicators (including frequency of travel) before (N = 50) and when using a satisfactory (n = 47) and an unsatisfactory (n = 16) dog.

the dogs' needs etc. This issue is further discussed in the next section. Therefore, frequency of travel was measured independently, using the same methodology as for travel performance. Thus, paired-samples t-tests were conducted to see if there were significant differences in how often participants travelled (dependent variable) before they used a dog, and when they used satisfactory and unsatisfactory dogs. The results for the following pairs are shown in Table 8.7:

Pair 1: Travel frequency before and when using a satisfactory dog
Pair 2: Travel frequency before and when using an unsatisfactory dog
Pair 3: Travel frequency when using a satisfactory and an unsatisfactory dog.

Results for Pair 1 suggested that participants travelled significantly more often when a satisfactory dog was used compared to before. The p value for Pair 2, which was significant at $p = .053$, did not retain significance at $p < .017$ with the application of the Bonferroni adjustment. Hence, there was no significant difference when an unsatisfactory dog was used compared to pre dog-assisted mobility. Results concerning Pair 3 show a significant decrease in travel frequency when an unsatisfactory dog was used compared to a satisfactory one. The eta-squared statistic, which ranged from .23 to .59, indicted that the relationships for all three pairs were strong. These results were backed up by a one-way ANOVA across the three conditions, the distributions for which are demonstrated in Figure 8.4, and a comparison of the mean scores with those of the five TPIs is illustrated in Figure 8.5.

8.6 Intensity of Travel

Participants were asked if using a dog changed how often and/or how far they travelled (travel intensity). Travel intensity increased for 88%, 10% did not report a difference and one participant travelled less intensely. Of those whose travel intensity increased, 80% said that this was mainly due to wanting to travel more often and/or further, as they felt more confident, and that travel was easier and faster. In contrast, travel intensity increased for two participants due to the dogs' needs for exercise and toileting, and for two others because of a change in work habits (i.e. conducting public relations work such as a school talk on life with a guide dog or because the location of a new workplace was further away). The 10% who experienced no change in travel intensity all claimed to have good long cane skills, but most considered travel easier, faster and

more enjoyable with a dog. The participant who travelled less often than before a dog was acquired, did so as his or her mobility needs changed and a walk to and from work was no longer necessary.

8.7 Journey Avoidance: Before Acquiring and When Using a Dog

Before a dog was acquired

Sixty eight percent of participants avoided one or more journeys (i.e. environments, routes and destinations) before they received a dog, and the remaining 32% did not. Of the participants who avoided certain journeys, 48% (n = 24) readily travelled independently before acquiring a dog. Those who did not readily travel independently relied upon the services of a sighted guide (18%), and one participant preferred being housebound to travelling with either a long cane or a sighted guide.

Concerning the 48% of participants who avoided one or more journeys while travelling independently before dog acquisition, 28% avoided busy, crowded environments such as outdoor markets, 24% limited their travel to their home base and/or familiar routes, and although not a 'journey' *per se,* 10% did not walk for pleasure such as a Sunday stroll. In relation to specific mobility tasks, 8% did not travel at night in the dark, 6% did not use public transport such as buses or trains, one participant avoided supermarkets and another did not negotiate areas with unmarked footpaths.

When using a dog

Fifty eight percent of participants did not avoid any journeys once they used a dog; an increase of 26% from before a dog was acquired, while the remaining 42% did. All participants claimed to travel independently, at least some of the time, once they acquired their dogs. The reasons given for the 42% of participants who avoided certain journeys when using their dogs were as follows:

Social situations

Eighteen percent abstained from attending social functions including going to the pub and crowded places like an outdoor concert, or left their dogs behind if attending; and 8% shunned homes or cars where dogs were not welcome.

Environmental

Twelve percent only travelled independently when using their dogs over familiar routes and chose to be sight-guided outside this domain; 6% stated that they could not work their dogs in heavily dog-populated areas, as the guide dogs were distracted by or aggressive towards the other dogs; one participant avoided areas such as roadworks or building sites, as her dog was side-tracked wherever several men congregated; and one participant preferred not to use his dog when the weather was inclement, due to the bother of dealing with a wet, grimy dog.

Specific mobility tasks

Six percent avoided negotiating busy motor traffic and roundabouts; one participant avoided wide platforms as her dog failed to maintain a straight-line of travel; and one participant chose air travel over buses or trains if the journey was long, as although all methods were uncomfortably confined, travelling by air was faster.

8.8 Problems with Access: Before Acquiring and When Using a Dog

Before a dog was acquired

The majority (78%) of participants reported they had difficulty accessing environments such as buildings and public transport before they used a dog, and the remaining 22% had none. Of those experiencing problems, 46% (n = 23) readily travelled independently and the remaining 32% required a sighted guide to gain access to virtually all destinations. Concerning the 46% of participants with access problems while travelling independently before acquiring a dog: 40% found gaining access to destinations and public transport to be difficult in general, finding doorways was problematic for 36%, and 16% reported they frequently stumbled and/or fell when accessing public places.

When using a dog

Sixty four percent of participants did not experience access problems when using a dog; a decrease of 14% prior to dog acquisition, whereas the remaining 36% did. Regarding the 36% of participants who experienced access problems when using their dogs, the biggest single issue noted was that 28% encountered periodic difficulties attempting to enter hotels, pubs or public transport, despite there being a legal requirement for guide

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Table 8.8. The participants' ($N = 50$) observations of advantages and disadvantages of guide dog usage

Advantages	%	Disadvantages	%
Travel		***Travel***	
Facilitates independent travel	66	Previous cane skills deteriorate	24
Finding destinations/doorways	66	Less safe/efficient or disorienting if dog is not working well	12
Obstacle avoidance (including overheads and puddles)	64	Obstacles are not located or identified	8
Less stressful	64	Mobility is reduced as dog ages/slows down or becomes sick	8
Safer travel	58	Difficult to work in crowds	2
Faster/more efficient travel	38	Cannot locate gap in doorway once doorway is identified	2
Expand horizons - no limits to travel/sense of freedom	32	Public are less likely to offer assistance	2
Can dispense with cane (stigmatising through sight and sound, and prods abdomen)	30		
Dignified travel (less stumbling)	16	*Indirectly related to travel*	
Facilitates public offers of assistance	12	Too big to fit in public transport, car, under desk	14
Facilitates travel on dark nights	8	Relatively low longevity and take a long time to replace	14
Other pedestrians get out of path of travel	8		
Easier to learn new routes/environments of travel	6		
Provision of some physical support/stabilising	4		
Social		***Social***	
Companionship (when and when not travelling)	94	Poor behaviour in social situations, at home or at work	22
Facilitates contact with others	58	Attracts unwelcome public attention	20
Helps to 'knit' a family	2	Unwelcome in certain environments (others' home, car, Marai)	18
		Public interacting with dog, not the handler	2
Other		***Other***	
Increased confidence in travel ability	62	Inconvenience when planning travel (with or without dog)	56
Increased self-esteem	32	Dog needs care (welfare, grooming; exercising toileting)	48
Enjoyment in caring for dog	16	Makes a mess in home, car and on clothing	32
Increase personal security from assault (when and when not travelling)	14	End of relationship is painful (death, retirement or return)	18
Look more 'normal'/'cool' - discourages pity	10	Expensive to maintain (food, health care, equipment)	12
Keeps one motivated, fit, sharp	6	Tension in family (dog not wanted, mess in home/garden)	6
Increase in personal space (can turn head to converse with travel companion)	4	Complying with the RNZFB's Guide Dog Services' rules	2

Sixteen percent stated that there were no disadvantages.
Total percent does not add to 100, due to open-ended questions/multiple responses.

dogs to be admitted. Six percent had problems when using buses, as the dogs were too big in size to fit into the small space allocation; and one participant found accessing doorways difficult as although his dog could indicate where the door was, the participant could not locate the gap as easily as he could when using a long cane. As previously mentioned, 12% continued to use a sighted guide when travelling over unfamiliar territory.

8.9 Advantages and Disadvantages of Dog Usage

The advantages and disadvantages of using a guide dog compared to other mobility aids are shown in Table 8.8. The responses have been sorted primarily into work related (travel) and non-work related categories (social and other), where the sub-heading 'social' incorporates responses concerning social interactions and companionship, and 'other' pertains to alternative effects. All 50 participants stated at least one advantage, but 16% said there were no disadvantages. Many more advantages than disadvantages were identified. Most of the advantages concerned the dog as mobility aid, and most of the disadvantages were categorised as 'other'. However, some of the categories overlap. For example, "increased confidence in travel ability" was classified as 'other' and "independence" as 'travel' instead of vice-versa.

For the majority of participants (66%), travel was enhanced by the facilitation of independent mobility, the dog finding destinations/doorways (66%) and avoiding obstacles (64%). Travel was perceived as less stressful, as the dog did the work (64%), safer (concerning traffic work in particular) (58%), more efficient (38%), and that travellers could expand their travel repertoire (32%). Another advantage was that participants (30%) could dispense with the long cane, which was considered stigmatising visually and auditory, and could be uncomfortable to use. Disadvantages regarding travel included the deterioration of previous cane skills due to a lack of practise (24%), and reduced mobility if the dog was not working well (12%) or slowed through old age and/or ill health (8%). Other disadvantages, which were indirectly related to the dog as a mobility aid, included being unable to fit the dogs into confined spaces (14%), low longevity, taking a long time to replace (14%) and the expense of maintenance (12%).

Advantages from the social category included companionship (94%) and the dog as a facilitator of social interactions (58%). Conversely, some dogs behaved badly at home or at social functions (22%), attracted unwelcome public attention (usually when the dog was working) (20%) and situations where the dog was not welcomed by others (18%).

The most often cited advantages in the 'other' category were feelings of increased confidence in travel ability (62%) and improved self-esteem (32%). Other benefits included the pleasures of nurturing a dog (16%) and feeling more secure from personal assault (14%). Disadvantages in this category concerned the demands and inconveniences of having and caring for a dog, that is, planning to travel with or without the dog (including the issue of quarantine when travelling overseas) (56%), attending to the dogs' needs (48%), and dealing with dog hair and other mess (32%).

Along with the previous chapter, this chapter has portrayed the results derived from the questionnaire that explored the themes arising from the literature, ethnographic fieldwork and the focus group, as described in Chapters 2 through 4. The next chapter aims to identify risk factors that may be associated with mismatches.

Table 9.1. Tests of between-subjects-effects generated to calculate the intra-class correlation coefficient for the outcome (dependent) variable of matching success

Source	Type 111 Sum of squares	*df*	Mean Square	*F*	Sig. $p =$
Corrected model	8.281*	49	.169	.788	.808
Intercept	4.828	1	4.828	22.525	.000
All cases	8.281	49	.169	.788	.808
Error	14.575	68	.214	-	-
Total	31.000	118	-	-	-
Corrected total	22.856	117	-	-	-

*R^2 = .362 Adjusted R^2 = .097

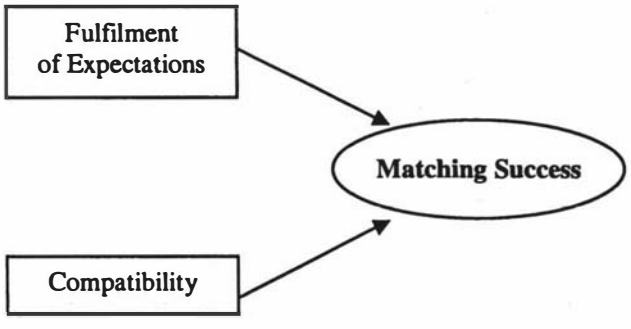

Figure 9.1. Proposed factors that influence the outcome of matching success.

9
The Survey
Results 3 - Factors Associated with Matching Success

This chapter presents the findings of the relationships between putative risk factors and the dichotomous outcome of matching success (i.e. whether a dog was considered by the handler to be successfully matched or mismatched, as defined in Chapter 7, section 7.19.3) for all 118 dogs in the sample. Before reporting on the model to be tested, the issue of non-independence of observations, as described in Chapter 7, section 7.1, will be discussed.

9.1 Independence of Errors

To reiterate, as there were several participants using more than one guide dog who were serially represented in the database, there was a possibility of non-independent observations caused by the effects of potential clustering. Hence, an intra-class correlation coefficient (ICC) was calculated to test for 'between subjects' effects for the outcome of matching success using the values shown in Table 9.1 and the following formula provided by Snedechor and Cochran (1989, pp. 242-244):

$$\text{ICC} = \rho = \frac{MSB - MSW}{MSB + MSW(\overline{n} - 1)} = -0.086$$

n-bar = average group size = 118/50 = 2.36

MSB = mean square between subjects = 0.169

MSW = mean square within subjects = 0.214.

The resulting small and negative value (ICC = -0.086) argues against there being any meaningful positive correlation between measurements (dogs) within the same handler (Snedechor & Cochran, 1989). Therefore, as justified in Chapter 7, section 7.1, this supports the decision not to make any adjustments and to treat each handler-dog team as an independent observation.

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Table 9.2. Pearson product-moment correlation matrix of the independent variables (IVs) comprising the Fulfilment of Expectations scale (FES) (items 1 - 6) and the Compatibility scale (CS) (items 7 - 13), and the dichotomous dependent variable (DV), matching success (item 14) ($N = 118$)

Item	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	FES IVs														
1	Travel	-													
2	Social interactions	.61**	-												
3	Companionship	.64**	.69**	-											
4	Other	.40**	.38**	.41**	-										
5	Dog behaviour	.78**	.59**	.65**	.39**	-									
6	Dog physical	.43**	.38**	.44**	.16	.44**	-								
	CS IVs														
7	Motivation (s)	.43**	.13	.33**	.10	.37**	.38**	-							
8	Control	.64**	.43**	.43**	.35**	.61**	.35**	.21*	-						
9	Bond	.63**	.53**	.74**	.36**	.67**	.47**	.43**	.58**	-					
10	Travel	.80**	.50**	.57**	.35**	.70**	.45**	.33**	.74**	.74**	-				
11	Social interactions	.54**	.63**	.60**	.17	.55**	.36**	.27**	.55**	.72**	.61**	-			
12	Companionship	.57**	.55**	.70**	.20*	.63**	.49**	.38**	.53**	.88**	.69**	.78**	-		
13	Match	.80**	.60**	.64**	.32**	.77**	.41**	.45**	.72**	.78**	.81**	.73**	.78**	-	
	DV														
14	Matching success	.78**	.54**	.53**	.33**	.73**	.30**	.36**	.70**	.61**	.71**	.55**	.54**	.86**	-

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

Motivation (s) = Motivation to succeed

9.2 The Fulfilment of Expectations, and Compatibility

The first theoretical model to be tested appears in Figure 9.1. The model hypothesises that the fulfilment of the handlers' expectations and the level of compatibility between handler and dog will have an effect on matching success.

As shown in Chapter 7, two measures, the Fulfilment of Expectations Scale (FES) and the Compatibility Scale (CS) were developed to determine how the handlers felt their expectations of guide dog use were met and how compatible they perceived their dogs to be with themselves. Both these scales were comprised of items concerning work and non-work related issues. The means and standard deviations for the scale items and the total scores were shown in Tables 7.9 and 7.20 respectively.

An additional test using Sudaan™, version 7.0 software, which is specifically designed for the analysis of cluster-correlated data (Brogan, 1998), was conducted to see if there was an effect of clustering of observations on the FES and the CS. The results of the 'design effect' for these scales were .86 and 1.22 respectively, that is, close to 1.00 where 1.00 = zero cluster effect. This supports the assumption of the intra-class correlation co-efficient calculation, which was conducted on the outcome of matching success, that the 118 handler-dog teams in the sample can be considered independent of one another.

9.2.1 Correlations between variables

Pearson product-moment correlation coefficients (r) were used to calculate bivariate correlations between the variables, and the strength of the relationship between the variables was interpreted using Cohen's (1988) guidelines, as described in Chapter 6, section 6.5.

The correlations between the items of the FES, the CS and the dichotomous dependent variable 'matching success' are presented in Table 9.2. The scale items for the FES (items 1 to 6) correlated significantly and positively with each other with the exception of the bivariate relationship between 'dog physical' and 'other'[1], as stated in Chapter 7, section 7.10.1. All items correlated significantly and positively with matching success in

[1] See Table 7.5, facing page 96, for items pertaining to 'other' expectations.

Table 9.3. Pearson product-moment correlation matrix of the independent variables Fulfilment of Expectations scale and the final model Compatibility scale with the dichotomous dependent variable, matching success ($N = 118$)

Variables	FES	CS	MS
Fulfilment of Expectations scale (FES)	-		
Compatibility scale (CS)	.81**	-	
Matching success (MS)	.72**	.72**	-

** $p < .01$

the following order from lowest to highest: 'dog physical', 'other', 'companionship', 'social interactions', 'dog behaviour' and 'travel'. The strength of these relationships ranged from .30 (medium) to .78 (strong), that is, with a shared variance of around 9 to 61%. These results are supported by the descriptive results in Chapter 7 where the majority of participants (70%) considered travel to be the most important factor concerning dog usage, and the dogs' behaviour (92%) as more essential than the dogs' physical characteristics.

The results for the CS items (items 7 to 13) show that all items significantly and positively correlated with each other, and with matching success in the following order from lowest to highest: 'motivation to succeed', 'companionship', 'social interactions', 'bond', 'control', 'travel' and the 'match'. The coefficients ranged from .21 (weak relationship) to .88 (strong relationship); sharing around 4 to 77% of variance. Item 13 (match) was removed as it correlated too strongly (.86) with the dependent variable, matching success, which may have masked the effect of other predictor variables on this outcome.

Significant, positive correlations between the items of the two scales, ranging from .20 to .80 with a shared variance of 4 to 64%, were seen between all the items except for the following three pairs: (pair 1) how well met expectations were concerning social interactions and how motivated a handler was to succeed with a particular match, (pair 2) how well met other expectations were and motivation to succeed with the match and (pair 3) how well met other expectations were and the dog's effects on social interactions.

The correlations between the total scores of the FES, the final model CS (minus item 13) and the dependent variable matching success, are presented in Table 9.3, which shows that all the variables were strongly and significantly related at $p < .01$ in the expected, positive direction. However, this may be reflective of the fact that the scales are measuring similar things to a considerable degree and therefore aspects of singularity may exist.

Table 9.4. Simple logistic regression analysis of the contribution of the total score of the independent variable Fulfilment of Expectations scale to the equation of the dichotomous outcome of overall matching success ($N = 118$)

Independent Variable (total score)	B	Wald test (z-ratio)	Sig. $p =$	Exp (B) (odds)	95% CI for Exp (B) lower	upper
Fulfilment of Expectations	.625	28.462	.000	1.868	1.485	2.350

Cox & Snell $R^2 = .449$ Nagelkerke $R^2 = .656$
Overall model $\chi^2 = 70.29$, $p < .0005$
Durbin-Watson statistic on linear regression = 1.9

Table 9.5. Simple logistic regression analysis of the contribution of the total score of the independent variable final model Compatibility scale to the equation of the dichotomous outcome of overall matching success ($N = 118$)

Independent Variable (total score)	B	Wald test (z-ratio)	Sig. $p =$	Exp (B) (odds)	95% CI for Exp (B) lower	upper
Compatibility	.270	25.508	.000	1.310	1.180	1.455

Cox & Snell $R^2 = .445$ Nagelkerke $R^2 = .651$
Overall model $\chi^2 = 69.50$, $p < .0005$
Durbin-Watson statistic on linear regression = 1.8

Table 9.6. Multiple logistic regression analysis of the relative contribution of the total scores of the independent variables Fulfilment of Expectations scale and the final model Compatibility scale to the equation of the outcome of overall matching success ($N = 118$), in decreasing order of predictive ability

Independent Variables (total score)	B	Wald test (z-ratio)	Sig. $p =$	Exp (B) (odds)	95% CI for Exp (B) lower	upper
Fulfilment of Expectations	.401	7.085	.008	1.494	1.112	2.008
Compatibility	.136	4.662	.031	1.146	1.013	1.297

Cox & Snell $R^2 = .481$ Nagelkerke $R^2 = .704$
Overall model $\chi^2 = 77.46$, $p < .0005$
Durbin-Watson statistic on linear regression = 1.8

9.2.2 Logistic regression: main effects

A series of logistic regression analyses was conducted to assess how well the two scales predicted the outcome of matching success, which scale was the best predictor of the outcome, and technically whether the use of the dog as a mobility aid influenced the outcome of matching success separately from other aspects of the relationship. All analyses were conducted via the standard (direct) entry method, where all of the covariates were placed into the regression model in one block for each analysis.

Initially, two separate (simple) analyses were conducted to assess how well the main effects of the FES and the final model CS were able to independently predict overall matching success, followed by a multivariate analysis where both scores were entered into the equation simultaneously to assess the model as a whole and the relative contribution of each score when the overlapping effects of the other is removed. These results are presented in Tables 9.4, 9.5 and 9.6 respectively.

The results indicate that each score separately and collectively made a statistically significant unique contribution to the equation. Table 9.4 shows that for every one unit increase on the 1 to 4 scale that measured the fulfilment of the handlers' expectations, the rounded odds of being successfully matched increased by 87%. Table 9.5 shows that every one unit increase on the 1 to 10 scale that measured how compatible a handler-dog team were, was associated with the likelihood of a successful match increasing by 31%. These values dropped to 49% and 15% in the multivariate analysis respectively (Table 9.6). The pseudo R^2 value for the FES (Table 9.4) explains a respectable rounded amount of between 45 and 66% of the variance in matching success, and around the same amount for the CS (Table 9.5). The range of explained variance increased to between 48 and 70% within the model as a whole (Table 9.6).

Given that this is an example of a classification analysis, a discriminant function analysis was also conducted with the same model. Although the results were similar, a significant Box's *M* suggested that assumptions of equality of covariance matrices were not met and therefore it was decided to use the logistic regression method as it is relatively free of restrictions (Tabachnick & Fidell, 2001).

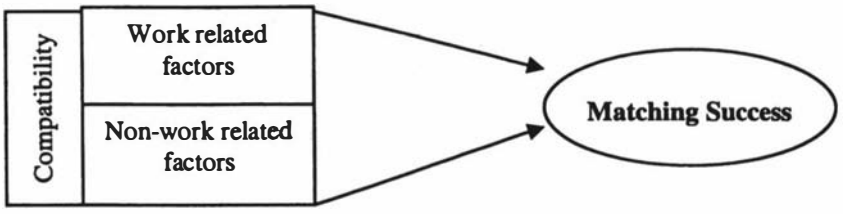

Figure 9.2. Proposed work and non-work related compatibility factors that influence the outcome of matching success.

Table 9.7. Multiple logistic regression analysis of the relative contribution of the total scores of the independent variables Work Compatibility and Non-work Compatibility to the equation of the outcome of overall matching success ($N = 118$), in decreasing order of predictive ability

Independent Variables (total score)	*B*	Wald test (*z*-ratio)	Sig. *p* =	Exp (*B*) (odds)	95% CI for Exp (*B*) lower	upper
Work Compatibility	.473	16.999	.000	1.605	1.282	2.009
Non-work Compatibility	.160	5.662	.017	1.174	1.029	1.340

Cox & Snell $R^2 = .472$ Nagelkerke $R^2 = .689$
Overall model $\chi^2 = 75.25$, $p < .0005$
Durbin-Watson statistic on linear regression = 1.7

Work and non-work related factors

Although descriptive results described in Chapter 7 revealed that there was overlap between work and non-work related issues, for example, a dog being a good companion in and out of harness, it was decided to further examine how factors relating to the technical (hands-on) use of the dog as a mobility aid influenced the outcome of matching success separately from other aspects of the relationship. Therefore, the second theoretical model to be tested (Figure 9.2) proposes that compatibility can be split into work and non-work related factors, and both affect the outcome.

Two subscales, Work Compatibility and Non-work Compatibility, were formed from the six items comprising the CS, and a multivariate analysis was conducted. The CS was chosen over the FES as the former was the more reliable measure (i.e. a 1 to 10 as opposed to a 1 to 4 scale) and had more items that could be combined into tangible work and non-work related categories. For example, 'dog behaviour' and 'dog physical' (FES items 5 and 6) could not be categorised as mainly one or the other category. Therefore, 'control' and 'travel' (items 8 and 10) were combined to form a total score for Work Compatibility ($M = 16.03$, $SD = 4.39$, $N = 118$) and a total score for Non-work Compatibility ($M = 34.15$, $SD = 7.12$, $N = 118$) was created by combining 'motivation to succeed', 'bond', 'social interactions' and 'companionship' (items 7, 9, 11, and 12).

The subscales were tested to ensure item reliability. The Cronbach's alpha coefficient for each subscale was .85, indicating that both had good internal consistency. The total scores are shown in Table 9.7, in the order of their ability to predict matching success. Results show that both the technical use of a dog aid (Work Compatibility) and other aspects of the relationship (Non-work Compatibility) made a statistically significant, unique contribution to matching success, with the former having the greater effect. Specifically, for every one unit increase in the technical use of a dog aid the rounded odds of being successfully matched increased by 61%, and by 17% for the other aspects of the relationship. Within this model, the pseudo R^2 value explains between 47 and 69% of the variance in matching success (Table 9.7).

9.2.3 Residual analysis

Although the problem with independence of errors (or autocorrelation) as described at the beginning of this chapter was considered negligible (owing to the small and negative

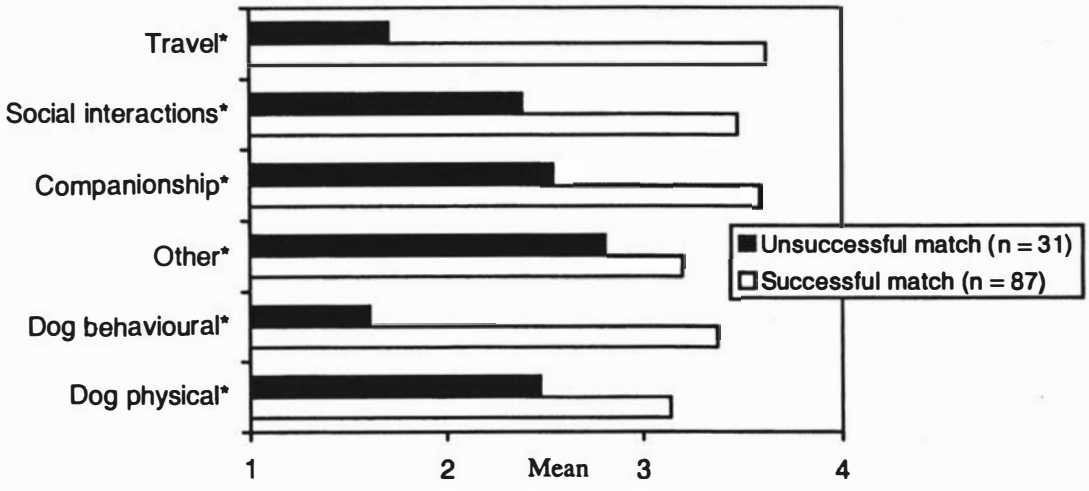

Figure 9.3. Comparisons of the items comprising the Fulfilment of Expectations Scale for the successfully and unsuccessfully matched groups.
*Using the Bonferroni adjustment for multiple comparisons, all differences between the successfully and the unsuccessfully matched groups are significant at $p < .008$.

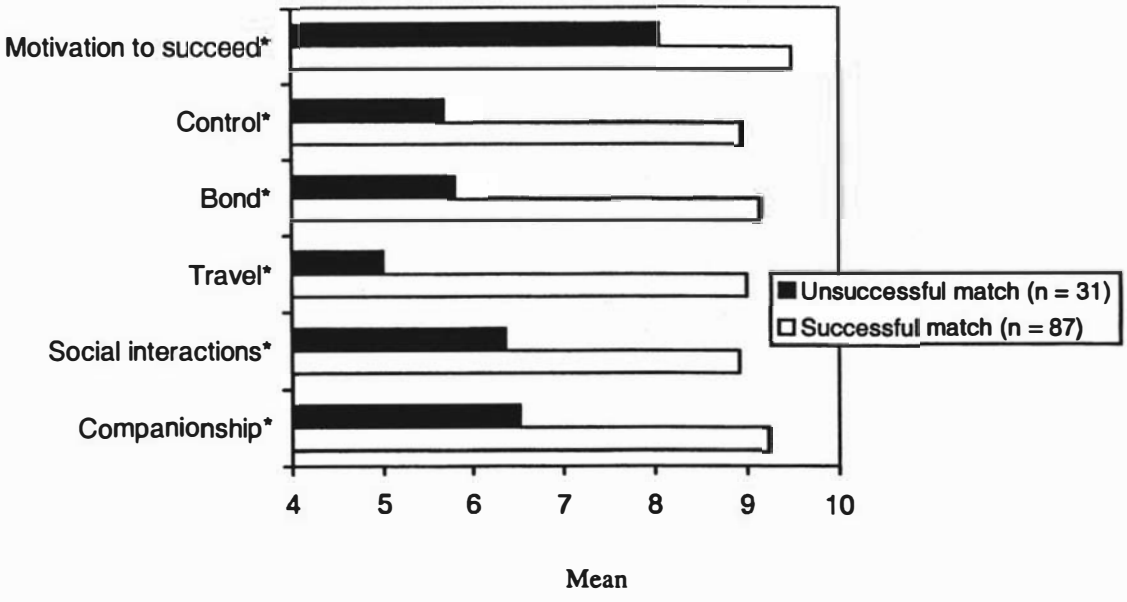

Figure 9.4. Comparisons of the items comprising the Compatibility Scale for the successfully and unsuccessfully matched groups.
*Using the Bonferroni adjustment for multiple comparisons, all differences between the successfully and the unsuccessfully matched groups are significant at $p < .008$.

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intra-class correlation co-efficient result, and a 'design effect' of close to 1.00) a Durbin-Watson test statistic was calculated to further investigate the issue. As no equivalent to the Durbin-Watson statistic was readily available for logistic (binary) regression, standard linear regression analyses were run concurrently for all the regression analyses described in this chapter to obtain an approximation of this value.

Results show that the Durbin-Watson statistic fell within an acceptable range of 1.70 to 1.90 (i.e. close to 2.00) from a possible range of 0 to 4.00 (Field, 2000). Although linear regression is usually conducted with a continuous dependent variable and has assumptions to be met such as normality of errors (an assumption that is not an issue for the more flexible technique of logistic regression), these results lend credence to the adjacent residuals in the dataset not being regarded as correlated.

Although not the primary reason for conducting these standard linear regression analyses, the significance levels (p) of all the outcomes were comparable to those of the logistic regression analyses.

9.2.4 Comparison of successful and unsuccessful matches

Separate multivariate analyses of variance (MANOVA)[2] were conducted to investigate the differences in (a) the fulfilment of the handlers' expectations and (b) compatibility scores for those who were successfully matched (n = 87) and those who were not (n = 31). The results show a significant difference between the successful and the unsuccessfully matched dogs for the combined dependent variables of the FES (F(6, 111) = 35.20, p = <.0005, Wilks' Lambda = .34), and for the CS (F(6, 111) = 24.89, p = <.0005, Wilks' Lambda = .43). The effect sizes of .66 and .57 respectively, as measured by partial eta-squared, were large (Cohen, 1988) for both outcomes. When the results for the items comprising these scales were considered separately (Figures 9.3 and 9.4), the difference in mean scores for each variable was significantly higher (p < .0005) for the successfully matched group when the Bonferroni adjustment technique for multiple comparisons (p < .008), as described in the previous chapter, section 8.4.1 was applied.

[2] Non-parametric Mann-Whitney U tests were also conducted, which supplied the same outcome.

Table 9.8. See Appendix E

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9.3 Other Factors Associated with Matching Success

In addition to the models tested above (Figures 9.1 and 9.2), the relationships between all other variables of interest in the main dataset and whether dogs were successfully matched were examined. The general approach to this analysis was adapted from Hosmer and Lemeshow (2000) where a series of bivariate analyses[3] were conducted to assess the association with the outcome of matching success with each putative risk factor individually. Where appropriate, categories of variables were collapsed to expedite analyses and chi-square (χ^2) tests for independence or Fisher's Exact Probability Tests were used to determine if categorical variables were related or independent to matching success. Pearson product-moment correlation coefficients (r) were conducted to explore the strength and direction of the relationship between continuous variables and matching success. The results of these analyses are reported in Table 9.8 (Appendix E).

In addition to the items of the FES and the CS, the explanatory variables that were significant at a screening criterion of $p < .25$, as recommended by Hosmer and Lemeshow (2000) for variable selection[4] are grouped below in four component models. Variables that were identified at this level of probability, but had a low number of cell counts, were of questionable importance or could not be clearly considered potential risk factors rather than outcomes were excluded. These included the non-resolution of canine behavioural and physical problems, not receiving unexpected benefits from using a dog, dogs that did not cope with the intensity of their workload and negative feelings of the handlers' friends and family.

1. Vision

- Cause of vision loss (progressive retinal disorders, congenital anomalies, or other inclusive of trauma/tumour).
- Deterioration of useful residual vision (yes or no/not applicable).

[3] Hosmer and Lemeshow (2000) use the terminology 'univariate analysis' for this approach.

[4] A high significance level was chosen as the conventional alpha level of $p = .05$ often fails to identify variables known to be important. In addition, a univariate approach at $p = .05$ may ignore the possibility that a collection of variables that are weakly associated with the outcome individually can be an important predictor as a collective (Hosmer & Lemeshow, 2000).

Table 9.9. Multiple logistic regression analysis of the relative contribution of 'Deterioration of useful vision' to the Fulfilment of Expectations scale and the Compatibility scale to the equation of the outcome of overall matching success ($N = 118$), in decreasing order of predictive ability

Independent Variables (total score)	*B*	Wald test (z-ratio)	Sig. *p* =	Exp (*B*) (odds)	95% CI for Exp (*B*) lower	upper
Fulfilment of Expectations	.402	7.069	.008	1.495	1.112	2.012
Compatibility	.137	4.662	.031	1.146	1.013	1.298
Deterioration in useful vision	.087	.006	.937	1.091	.124	9.613

Cox & Snell $R^2 = .481$ Nagelkerke $R^2 = .704$
Overall model $\chi^2 = 77.47$, $p < .0005$
Durbin-Watson statistic on linear regression = 1.8

Note: The variable 'amount of useful vision' was not included in this model regardless of a significant relationship with matching success at $p < .05$, as there were too few cases with a lot of useful vision to be appropriate for chi-square analysis. However, based on theoretical grounds and the researcher's (author of this thesis) interviews with guide dog staff, this relationship was further examined and the results appear later in this chapter in section 9.3.1.

2. Pet owning history

- Previous responsibility for owning a pet (yes or no).

3. Team training

- Relationship with instructor (continuous scale from 1 to 10 where 10 is good, $M = 8.22$, $SD = 2.17$) - correlation was in a positive direction.
- Satisfaction regarding training with dog (continuous scale from 1 to 10 where 10 is satisfied, $M = 7.71$, $SD = 2.50$) - correlation was in a positive direction.
- Training venue (domiciliary (home) only or other (residential, centre-based or combination)).

4. Workload

- Main working environment (busy city or elsewhere).
- Amount of work (low, medium or high).

Given the small sample size and hence lack of power, a standard logistic regression analysis was performed for each of the four groups as a basis for selection of a subset of significant variables to be included in a final analysis with the FES and the CS to see if the subset variables contributed to the predictive ability of the model. Analyses to examine moderating (interaction) effects were not conducted as there was no theoretical basis to do so, and pragmatically, this would have required more subjects, as would stepwise regression methods.

Although three (Vision, Training and Workload) of the four component models had an overall significant effect on the outcome at $p < .05$, the only item to remain at this level of significance was 'deterioration of useful vision'. The results of subjecting this item to the final regression analysis (Table 9.9) shows that the FES and the CS were still able to

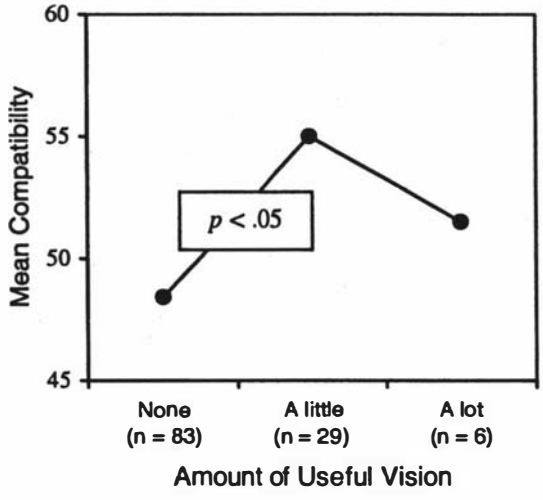

Figure 9.5. Comparisons of the mean compatibility scores for the three categories of the handlers' self-professed, useful vision for all dogs ($N = 118$).

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individually significantly predict the outcome of matching success when the effect of 'deterioration of useful vision' was controlled for, but this additional variable did not make a significant unique contribution.

Many factors that are depicted in Table 9.8 (Appendix E) were found not to vary significantly with matching success, including the age and sex of the handlers, the breed (i.e. the more conventional guiding breeds or all others) and sex of the dogs, or the number of people living in the household.

9.3.1 Useful residual vision

As the relationship between the amount of useful residual vision and matching success could not be examined categorically due to the low number of expected cell frequencies, a bivariate Pearson product-moment correlation coefficient (r) was conducted to explore the strength of the relationship between the amount of useful vision (used as a continuous scale) and compatibility. Compatibility, as measured by the CS, correlates very highly (.72) and significantly with matching success (Table 9.3). Results show a small, but significant correlation (r = .22, p < .05) indicating that the level of compatibility increases in accordance with the amount of useful vision.

A one-way ANOVA was conducted to further evaluate this relationship (Figure 9.5). The handlers (N = 118) were divided into 3 groups according to the amount of useful vision they felt they had at the time they used each of their dogs: none (n = 83), a little (n = 29) and a lot (n = 6). A statistically significant difference was found in the total compatibility scores for the three groups [$F(2, 115) = 4.39$, $p = .015$]. As the variance in scores was different across the groups (Levene's test), post-hoc comparisons were conducted using the Dunnett's C test, which does not require population variances to be equal. The results indicate that the mean score for the group with no useful vision (M = 48.41, SD = 11.21) was significantly lower (p < .05) from those with a little (M = 55.00, SD = 7.95). Those with a lot of useful vision (M = 51.50, SD = 7.64) did not differ significantly from either of the other groups. The effect size (η^2 = .07) indicated a moderate degree of association between compatibility and the amount of useful vision. The major difference was between the groups with no and a little useful vision, with those with a little reporting the highest levels of compatibility.

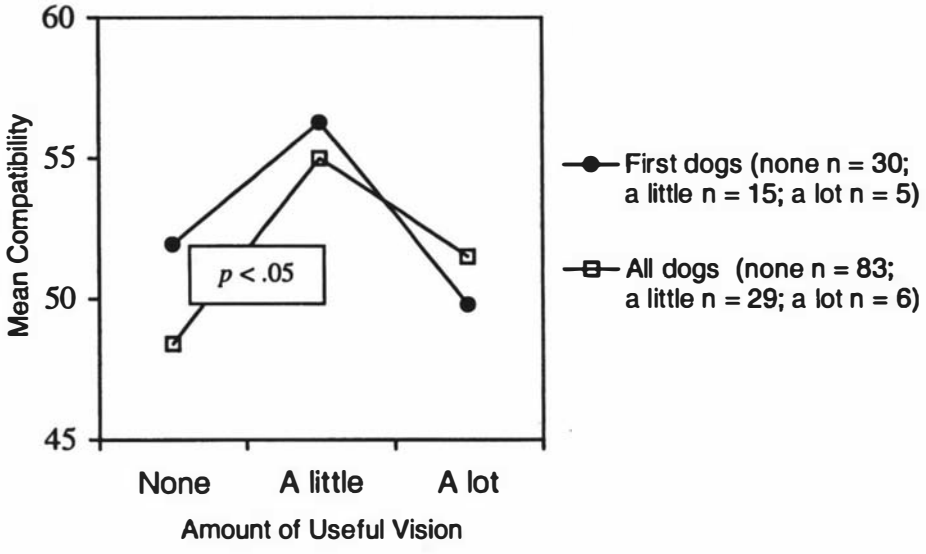

Figure 9.6. Comparisons of the mean compatibility scores for the handlers' three categories of self-professed useful vision when using their first dogs (n = 50) and all dogs (N = 118).

First dogs only

Five of the six handlers with a lot of useful vision were using their first dogs at the time, which may have elevated the mean compatibility score due to first dogs being favoured in general, as implied throughout Chapter 7. Therefore, a one-way ANOVA was conducted on those using their first dogs only (n = 50) to negate this effect. This overall model was significant ($F(2, 47) = 3.48$, $p = .039$) across the three groups: no useful vision ($M = 51.93$, $SD = 6.41$, $n = 30$), a little useful vision ($M = 56.27$, $SD = 4.33$, $n = 15$) and a lot of useful vision ($M = 49.80$, $SD = 7.16$, $n = 5$). The variance in scores was the same for each group, and a Tukey's HSD post-hoc test showed no significant differences between any groups. A comparison of the difference in mean scores between the groups for first dogs and for the overall sample is illustrated in Figure 9.6. First time dog handlers with a little useful vision also reported the highest levels of compatibility, but the major difference was between the groups with a little and a lot of useful vision.

Concerning first dogs, it is of note that the p value of the difference between those with no useful vision and those with a little was .065, whereas the p value of the difference between those with a little and those with a lot of useful vision was further (.099) from statistical significance despite the difference in the mean being greater. This finding is likely due to the latter group being very small and it is probable that this difference would be significant with a larger sample. However, even with these small sample numbers, an eta-squared statistic of .13 indicated a sizeable amount of association between compatibility and the amount of useful vision for first-time dog users.

9.3.2 Quality of life

An overall quality of life score ($M = 4.70$, $SD = 1.46$, $N = 50$) was calculated by summing the responses of the participants who answered "yes" to the following six dichotomous (yes or no) questions: "Does becoming a guide dog handler improve the participants' (1) social interactions, (2) fitness, (3) general health, (4) mental health, (5) adjustment to loss of vision, and (6) quality of life in general?" The 1 to 6 scale, where 6 meant a higher quality of life score, was tested to ensure item reliability. All inter-item correlations were adequate (above .3), and the Cronbach's alpha coefficient was .72, indicating that the scale had good internal consistency (Pallant, 2001).

As the participants had been asked to consider their experience with guide dogs in general and to rate all their dogs as one group (in order to facilitate delivery of the questionnaire), the scores were not independent of one another. Hence, the following analyses were confined to those who had used one guide dog only ($M = 5.11$, $SD = .96$, $n = 18$). Pearson product-moment correlation coefficients (r) were conducted to examine the relationship between this cohort's overall quality of life and compatibility, and overall quality of life and matching success. However, no relationships were seen with this small subset of participants.

This chapter has examined factors associated with the success or failure of the match. The next chapter further investigates the relationship patterns between handlers and their first and subsequent dogs that appear to be emerging from the data.

Table 10.1. Description of the total scores for the fulfilment of the handlers' expectations and level of compatibility for first, second and third dogs

	N	Fulfilment of Expectations		Compatibility	
		M	*SD*	*M*	*SD*
First dogs (Dog 1)	50	20.18	3.00	53.02	6.24
Second dogs (Dog 2)	32	17.38	4.96	48.03	12.10
Third dogs (Dog 3)	15	18.67	4.03	52.27	7.33

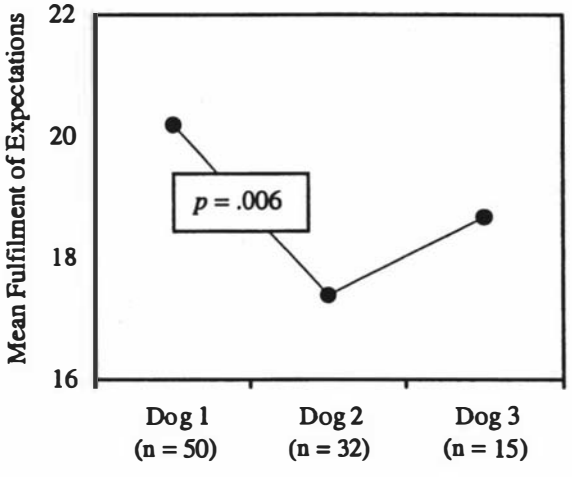

Figure 10.1. Comparisons of the mean fulfilment of expectations scores for the first, second and third dogs.

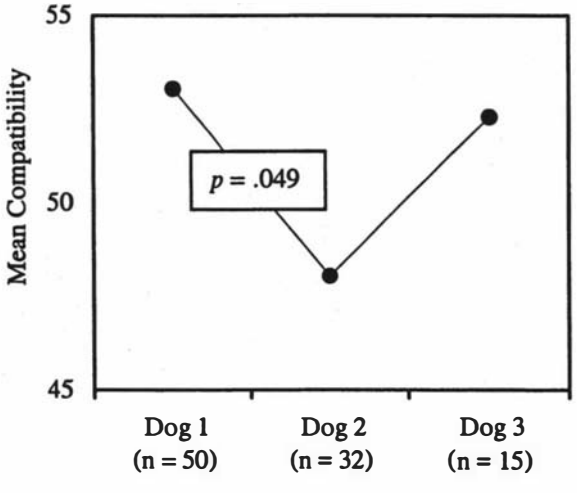

Figure 10.2. Comparisons of the mean compatibility scores for the first, second and third dogs.

10
The Survey
Results 4 - Trends between Dogs

Concerning the relationships handlers had with their dogs, a recurring trend of 'first dog best - second dog worst', with little apparent difference between the first and third dogs, was found in the descriptive results (Chapter 7). As this pattern may be of interest to the guide dog industry, this 'second dog syndrome' is investigated in this chapter. The focus will be on the trends between the first and second, and the second and third dogs, as these dogs comprise the majority (82.2%) of dogs in the sample.

It was decided not to apply the Bonferroni adjustment technique for multiple comparisons to the alpha levels reported throughout this chapter because (a) the relationships between the first and second dogs were of main interest, (b) only 15 participants had used a third dog and (c) the power of the study was already compromised by the use of independent-samples t-tests instead of the optimal paired-samples t-tests[1].

10.1 The Fulfilment of Expectations, and Compatibility

Independent-samples t-tests were conducted to test for differences between first and second dogs, and then second and third dogs concerning the fulfilment of the handlers' expectations, and handler and dog compatibility, as defined in Chapter 9, section 9.2. A description of the total scores for first, second and third dogs is presented in Table 10.1, and the results for the Fulfilment of Expectations Scale (FES) and the Compatibility Scale (CS) are presented in Figure 10.1, and 10.2 respectively.

FES scores were highest for first dogs and lowest for second, with second dogs scoring significantly lower than first ($t(45.63) = 2.88$, $p = .006$, $\eta^2 = .09$). There was no significant difference in scores for second and third dogs, and the effect size ($\eta^2 = .02$)

[1] Ideally, paired-samples t-tests would have been the preferred choice, but the structure of the database did not permit these analyses. However, the use of independent-samples t-tests was feasible, despite it being more difficult to reach statistical significance with this method.

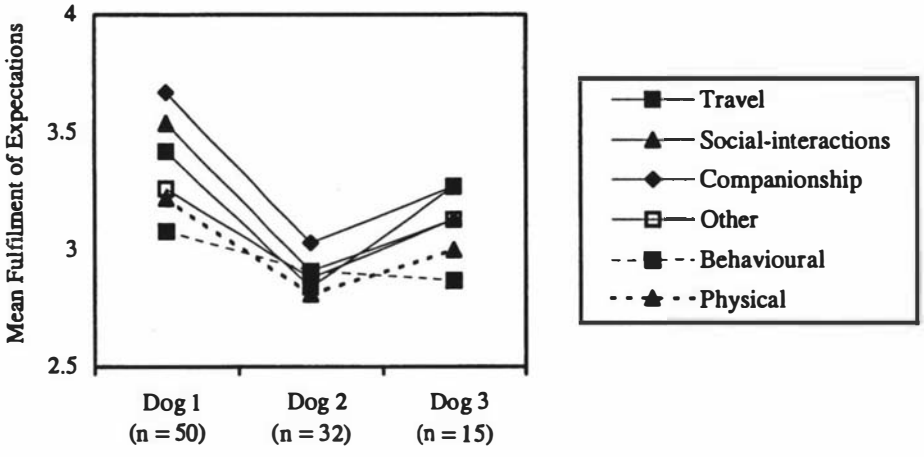

Figure 10.3. Trends in the items comprising the fulfilment of expectations for first, second and third dogs.

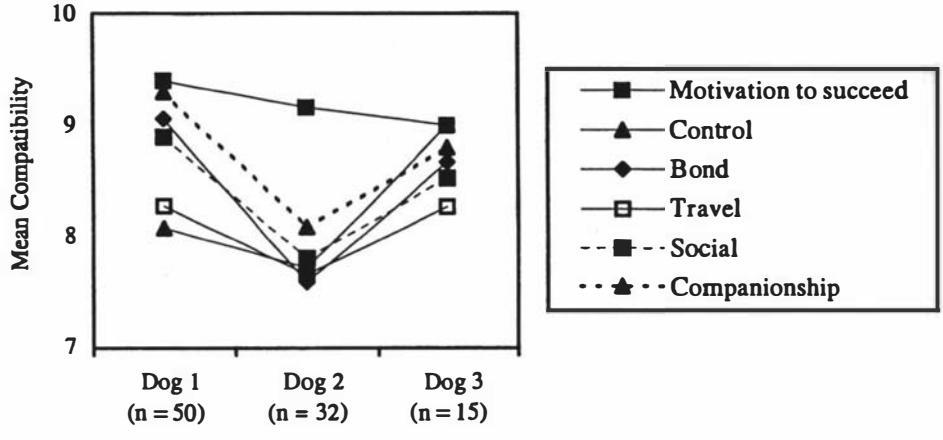

Figure 10.4. Trends in the items comprising compatibility for first, second and third dogs.

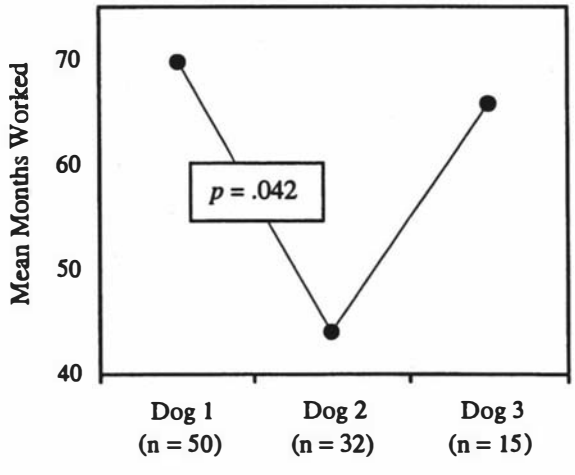

Figure 10.5. Comparisons of time that previously used first, second and third dogs worked.

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was small (Cohen, 1988). A similar pattern was seen for the CS, where a significant difference was seen between first and second dogs ($t(40.32) = 2.03$, $p = .049$, $\eta^2 = .05$), but not second and third dogs ($\eta^2 = .04$). The latter finding, which is repeated throughout this chapter, is unexpected when the mean scores for compatibility are examined (Table 10.1), and is probably due to the small number of third dogs in the sample.

Significance testing was not conducted at the item level, however trends in the items comprising the fulfilment of expectations and compatibility for the first three dogs can be seen in Figures 10.3 and 10.4 respectively. These show the general trend of 'first dog best - second dog worst', with little apparent difference between the first and third dogs for most items. Not in keeping with this pattern are the slightly lower mean values for third dogs compared to second dogs concerning behaviour in relation to the fulfilment of expectations, and motivation to succeed in relation to compatibility.

10.2 Working Life of Previously Used Dogs

The length of time that previously used dogs (i.e. dogs not in current use) worked (Table 7.2) is illustrated in Figure 10.5. Independent-samples t-tests reveals that second dogs ($M = 44.05$, $SD = 47.25$) were used for significantly less time than first dogs ($M = 69.72$, $SD = 41.24$, $t(53) = 2.09$, $p = .042$, $\eta^2 = .08$). No significant difference was seen between second and third dogs ($M = 65.75$, $SD = 46.51$, $\eta^2 = .05$).

10.3 Reasons for Dogs being Returned

The general and specific reasons why first, second and third dogs were returned (i.e. at less than eight years of age) are depicted in Figure 10.6. More second dogs (40.6%) were returned in total than first (28%) or third dogs (20%) respectively. The significance of these numbers will be examined in the next section.

The main reason for the return of first and second dogs in general was the dogs' behaviour, with second dogs reported to have more behavioural problems than first, while the handlers' behaviour accounted for the return of most third dogs. No first or second dogs were returned for the handlers' behaviour, and no third dogs were returned for the dogs' poor health (dog physical). A higher percent of second dogs than first dogs were returned for canine physical problems. However, the number of dogs in this study

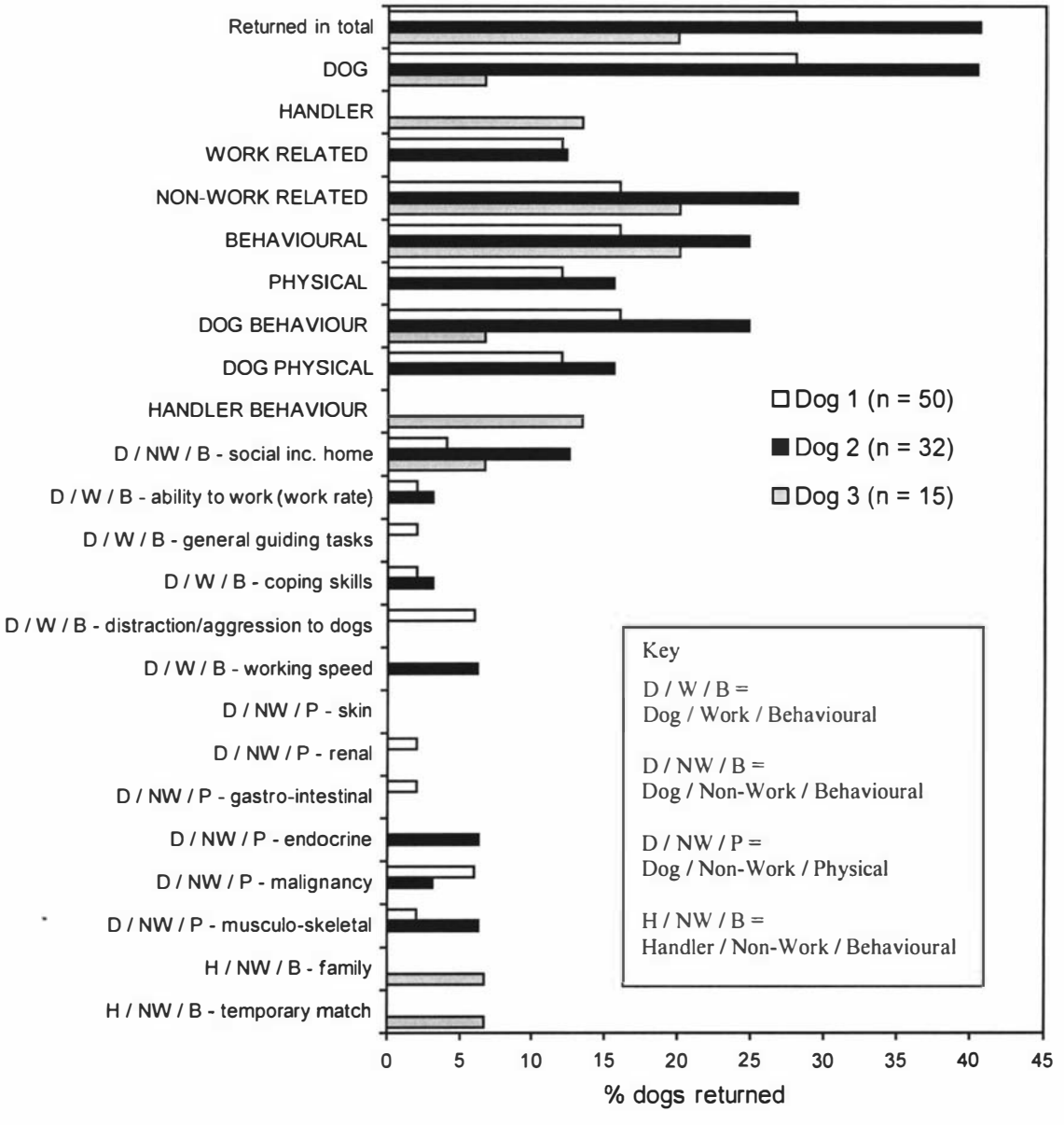

Figure 10.6. Percent of first, second and third dogs (n = 97) returned in total, and by general (denoted in capital letters) and specific physical and behavioural categories of handler and dog and how they relate to work and non-work related issues.

that were returned annually for health problems across the years participants used them (1962–2002) remained constant. Overall, more second, first and third dogs, respectively, were returned for non-working issues than work-related. Similar numbers of first and second dogs were returned for work related issues, but no third dogs were returned for this problem. The largest specific reasons that first dogs were returned was due equally to dogs being distracted by or aggressive to other dogs when working, and the dog having a malignant cancer. Most second dogs, however, were returned for poor behaviour at home and in other social settings.

10.4 Mismatched Dogs versus Returned Dogs

To reiterate, not all dogs that were returned were considered mis-matched. For example, in this study some successfully matched dogs were returned for the dogs' poor health or because of changes in the handlers' personal or social circumstances (Figure 7.4).

When accounting for the proportion of dogs in current use, the number that were (a) returned, (b) mismatched and (c) mismatched and returned were all highest for second dogs and lowest for third (Figure 10.7). Odds ratios indicated that the likelihood of being (a) returned and (b) mismatched was nearly twice (1.80) as high for second dogs as first dogs, and second dogs were 3-times more likely to be (c) mismatched and returned than first dogs. Third dogs were around 3-times less likely than second dogs to be (a) returned (2.70) or (b) mismatched (3.00), and nearly 5-times less likely to be (c) returned for being mis-matched. Only half of the mismatched first and third dogs were returned, but mismatched second dogs were returned 4-times as often. None of these trends reached statistical significance on chi-square analyses. However, second dogs were significantly (4-times) more likely to be returned if mismatched than retained (Fisher's Exact Probability Test $p < .004$).

10.5 Feelings at the End of the Partnership

Trends regarding the handlers' feelings and other issues arising at the end of the partnership with different dogs are presented in Figure 10.8. More handlers' had feelings of extreme grief at this time for first dogs (74%) compared to second (35.5%), which increased again for third dogs (64.3%). A chi-square value of 11.95 ($2, n = 95, p = .003$) indicates that there is a significant difference in the number of handlers who grieve intensely across the dogs. Specifically, significantly fewer handlers have feelings

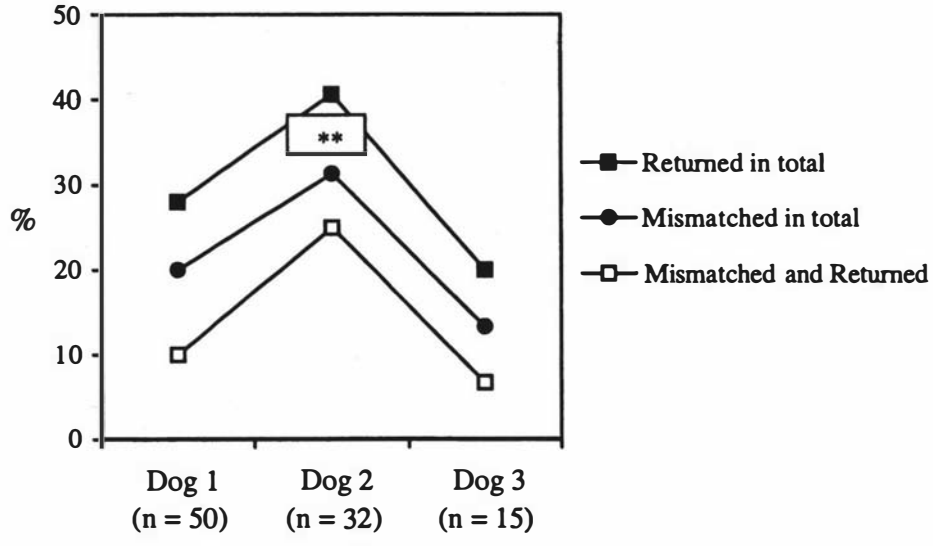

Figure 10.7. Comparisons of the relationships between the first, second and third dogs concerning the percent of dogs returned, mismatched, and those returned for being mismatched. ** = Denotes the significant relationship between the second dogs that are returned for being mismatched and those that are retained ($p < .004$).

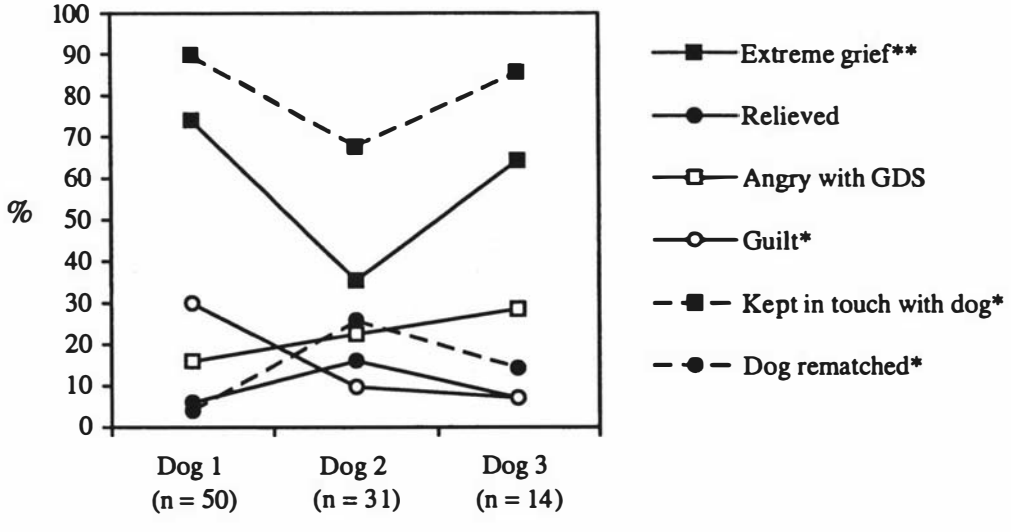

Figure 10.8. Comparisons of the handlers' feelings and the dogs' fate arising at the end of the working partnership for first, second and third dogs.
Each overall model between dogs: * $p < .05$ ** $p < .01$

of extreme grief for second dogs than first (Yates' Correction for Continuity χ^2 (1, n = 81) = 10.22, p = .001), but no significant difference was seen between the second and third dogs. The opposite pattern was true for feelings of relief, although this was not statistically significant. Again, although not a significant finding, more handlers felt angry with the RNZFB's GDS concerning the end of the partnership with their third (28.6%) and second dogs (22.6%) than for their first (16%). An overall significant difference (χ^2 (2, n = 95) = 6.64, p = .036) in the number of handlers who reported a sense of guilt when the partnership ended with their first (32%), second (9.7%) and third (7.1%) dogs was found. However, this difference did not remain significant when first dogs were compared to second dogs, nor when second dogs were compared to third dogs.

While it would have been interesting to see whether this trend applied to handlers keeping retired second dogs as pets less often than first or third dogs, the analysis was constrained by the RNZFB's GDS' policy of keeping retired dogs changing over the years dogs were used in this sample. However, a significant difference (χ^2 (2, n = 95) = 6.60, p = .037) was seen in the number of handlers who desired to keep in touch with their second dogs (67.7%) compared to their first (90%) or third (85.7%). When broken down across groups, significantly fewer handlers wanted contact with their second dogs compared to their first (Yates' Correction for Continuity χ^2 (1, n = 81) = 4.89, p = .027), but the difference was not significant between second and third dogs.

Rematched Dogs

Bearing in mind that more second dogs were available for rematching, as more were returned than first or third, more second dogs (25.9%) were rematched to other handlers than were first (4%) or third (14.3%) dogs. A chi-square analysis on the overall model could not be conducted due to too few cases in each category, however Fisher's Exact Probability Test indicated that the difference between first and second dogs was significant (1, n = 81, p = .006), but not for second and third dogs.

10.6 Team Training and Matching Success

As shown in Table 9.8 (Appendix E) and discussed in Chapter 9, section 9.3, matching success correlated significantly and positively with the handlers' satisfaction regarding team training (n = 114, r = .25, p < .01) and the relationship with the instructor (n = 111,

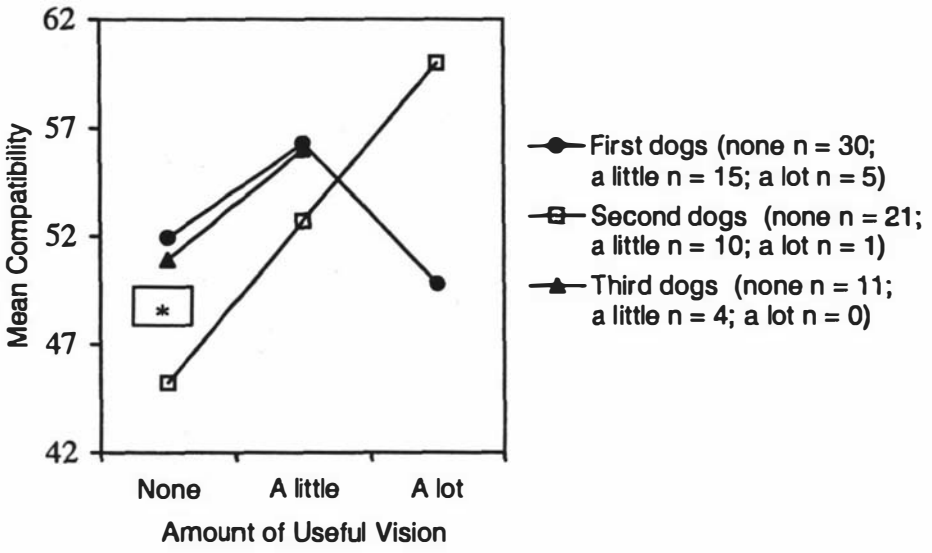

Figure 10.9. Comparisons of the mean compatibility scores for the handlers' three categories of self-professed useful vision when using their first (n = 50), second (n = 32) and third (n = 15) dogs.
* Denotes the significant difference (p = .036) in compatibility between handlers with no useful vision using their first and second dogs.

r = .31, p < .01), although the strength of these relationships was not strong. Independent-samples t-tests did not show any significant differences between the first, second and third dogs concerning these issues. This finding suggests that the relationships between satisfaction with training, and affiliation with the instructor, with matching success are not significantly related to the scores on these dogs.

10.7 Useful Residual Vision and Compatibility

Results from the previous chapter (section 9.3.1) indicated differences in compatibility between first and all dogs in the sample in relation to the amount of useful residual vision handlers professed to have (Figure 9.6). The relationship between compatibility and useful vision was further examined by comparing first, second and third dogs (Figure 10.9). However, as 5/6 handlers with a lot of useful vision were first-time dog users, the difference between the groups for this category is non-meaningful and was excluded from the analyses.

Handlers with a little useful vision reported the highest levels of compatibility, which did not differ significantly between dogs. The main difference in compatibility between dogs appears to be with those who have no vision. Independent-samples t-tests found that handlers with no useful vision scored significantly higher with their first dogs (M = 51.93, SD = 6.41, n = 30) than with second (M = 45.24, SD = 12.85, n = 21, t(27.02) = 2.20, p = .036, η^2 = .09), but not between second and third.

10.8 Quality of Life

This chapter has looked at the relationships between the first three dogs. However, due to problems with independence described in Chapter 9, section 9.3.2 second dogs could not be examined discretely in this section. Instead, an independent-samples t-test was conducted to compare the quality of life score for those who had used only one dog (M = 5.11, SD = .96, n = 18) with those who have used more than one dog (M = 4.70, SD = 1.65, n = 32). Results suggest that although the use of subsequent dogs lowers the participants' perception of quality of life from when they used their first dogs, this difference was not significant (t(47.88) = 1.74, p = .088), albeit with a moderate effect size (η^2 = .08).

This chapter concludes the analysis of the central data generated by the survey questionnaire. The next and final chapter of the thesis will review the study as a whole, and discuss the main points that have arisen from the results chapters, including the focus group (Chapters 4, 7, 8, 9 and 10).

11
General Discussion and Conclusions

This thesis describes the relationship between handlers and their guide dogs, from the handlers' perspective. Based on the literature and ethnographic fieldwork, the partnership was explored to identify characteristics of handler and dog that will improve the outcome of the matching process. The objectives were to understand what affects the dogs had on the handlers' lives, establish compatibility and identify why some partnerships worked while others did not. This chapter will interpret and place in context the main findings in relation to the key areas and research questions presented in Chapter 5. Many of these themes arose from the focus group, the results of which were discussed in Chapter 4 and are summarised below. Suggestions for further research will be made throughout this chapter, and the chapter will conclude with a discussion of the limitations of this study, future research directions and implications for the guide dog industry.

11.1 The Focus Group Discussion

The focus group discussion identified eight themes concerning seven people's experiences with guide dogs and other mobility aids. These themes (mobility, adjustment to sight impairment, advantages and disadvantages of guide dogs, matching, training, social functioning, family and friends' feelings towards the dogs, and the outcome of the relationship) established that many of the issues found in the literature concerning the use of guide dogs in other countries also relate to the experiences of New Zealanders. However, it is the researcher's (author of this thesis) understanding that this is the only focus group data on the use of guide dogs to be reported.

Positive findings, which support Harland's (1992) unpublished findings from a master's study of eight guide dog handlers in New Zealand, Miner (2001) and Refson et al. (1999), included improved mobility (through the use of the dog as a mobility tool as well as enabling independent travel), companionship, increased confidence and self-esteem, and enhanced social interactions. A common disadvantage that was found in all four studies concerned the responsibility and social inconvenience of having a dog. However, novel issues were raised in the focus group including training with the dog,

how friends felt about the dog, and factors that may influence the match. These factors included the need for compatibility regarding personality as well as for mobility needs, the handlers' preferences for specific breeds, and for consideration to be given to lifestyle and to other household members including pets. This group considered social behaviour as important as mobility for a match to be successful.

The focus group method is distinctive for how the participants interact with each other as well as with the researcher, rather than its mode of analysis (Wilkinson, 1998). Thus, the goal of this study was not to represent in a statistical sense, but to learn about a range of perceptions and opinions (Kitzinger, 1994). The small sample of volunteers from one geographic region may not be representative of all members of the RNZFB, but the results agreed with the literature and discussions with the RNZFB's GDS' staff. The validity of the focus group was increased as it formed part of a methodological triangulation approach to data collection, as recommended by Mays and Pope (1995) and Pernice (1996).

The conversation was dominated by those with guide dog experience, but all participants found the discussion enjoyable, as evidenced by general demeanour and laughter. Focus groups are not intended to be educational or supportive in an emotional sense (Carey, 1995), however, the opportunity to contribute was described as cathartic for some. The participants appeared uninhibited by the moderator (researcher) and co-facilitator whose presence did not seem to bias responses. The study fulfilled its purpose as an information gathering exercise and the findings helped to formulate the survey questionnaire that explored the match between handlers and guide dogs and identified factors associated with matching success.

11.2 The Survey

The survey consisted of interviews with 50 guide dog handlers across New Zealand. A range of aspects was explored concerning the handler-dog relationship before each dog was acquired to the end of the partnership. This included why people applied for a dog and what expectations they had, followed by matters concerning training and the working partnership. The latter included how well expectations were met, compatibility between the handler and dog, the dogs' effects on the handlers' quality of life, and other factors associated with matching success. The outcome of the partnership (i.e. whether

dogs were successful or not) and issues that arose at the end of the partnership were also examined. In addition, changes to travel performance and travel habits, the advantages and disadvantages of using a dog, and suggestions on how service delivery may be improved were investigated.

The complexity of the relationship between a handler and a dog is apparent when deciding what represents a successful or an unsuccessful pairing. An interesting finding was that there was a difference between dogs that were returned and dogs that were unsuccessfully matched. Most partnerships were successful, but not all the dogs that worked until retirement were good matches and not all the dogs that were rejected before retirement age were mis-matched. Therefore, the definition of matching success was based on the handlers' opinions of whether a dog was successfully matched, regardless of whether it was returned.

11.2.1 Before acquisition of a guide dog

Application

Many participants thought they were ineligible to apply for their first guide dog due to having too much vision and more were encouraged to apply by other handlers, friends, family and the media than by the RNZFB. Lane et al. (1998) found that people with physical disabilities other than vision loss were more satisfied with their assistance dogs if it had been their idea to get one, but there was no significant relationship between who instigated getting the dog and matching success in the present study. This may be because all bar one dog in the present study was acquired to please the handler and not the person or the organisation that suggested it.

Expectations

- *What are the handlers' expectations concerning guide dog use?*

Participants were asked what they expected an 'ideal' dog would do for them in terms of travel, social interactions and companionship, and what behavioural and physical characteristics this hypothetical dog would possess. Travel was identified as the most important activity, and behaviour as more important than physical characteristics. This order was supported when these factors were correlated with matching success. The few participants who thought that physical characteristics were more important than the

dog's behaviour had experienced one or more dogs with marked health problems, suggesting that good health might be taken for granted until it becomes a major concern.

Most participants expected that a dog would improve their O&M skills, they would be able to travel independently, and predicted that travel would be safer, easier and faster. This supports Clark-Carter et al. (1986), Deshen and Deshen (1989) and Fuller's (1976) observations that an increase in mobility is the primary reason for acquiring a dog. However, companionship and social interactions also rated highly. Some participants volunteered the information that companionship and social-interactions (i.e. factors other than mobility) became more important as dogs aged and were physically unable to sustain their previous level of work. This suggests that for some, the important aspect of a relationship may change over time. Other expectations included becoming more self-confident and enhancement of self-esteem. Expectations were lower for first guide dogs compared to subsequent ones, as novice handlers did not know what to expect.

While most of the expectations of a dog's behaviour pertained to mobility, such as the capacity to work and specific guiding tasks, the most frequently mentioned were for a good personality and social behaviour. The physical characteristic most sought after was a particular breed, followed by a size that could fit into compact spaces such as on public transport, and the desire for an easy care coat. Of those that preferred a certain sex, bitches were favoured in the belief that they would be smaller, less strong, and exhibit fewer of the behaviours that are affiliated with sexually intact male dogs such as scent marking, roaming and territorial aggression. As this request was being made by both experienced and inexperienced handlers, clients ought to be informed that these behavioural sexual differentiations are unremarkable in the working guide dog colony because both sexes are neutered at around eight months of age.

It was found that the most suitable guide dog for the majority of participants was an attractive, medium sized, yellow or black Labrador retriever bitch with a friendly disposition that is sound physically, is mentally robust yet sensitive, well behaved when not working, and is a conscientious worker that is not distracted by sights, sounds, smells or other animals. This hypothetical dog is easy to define, but dogs that fulfil all requirements are rare and a dog's idiosyncrasies have to be considered as part of the matching process (H. Robson, 1985).

Participants who wanted their dogs to look nice were aware that they were the focus of public scrutiny and that the dog was part of their image. Tuttle (as cited in Welsh, 1997) described how people who are blind or sight impaired may resolve the differences in how they see themselves and how they are seen by others by maintaining a high sense of self-esteem. As self-image is one phase of self-esteem (Carroll, 1961), it is feasible that having an attractive dog adds to this sense of self-esteem, which may explain the importance of wanting such a dog. This issue of self-concept and blindness was also discussed in the focus group concerning a sighted person's insensitive comment that the dog's appearance should not matter if one has no vision.

Some responses pertained to both work (mobility) and non-work categories. For example, companionship was important for handlers when travelling as well as when at home. This suggests that the dog is more than just a tool, and that the company of the dog adds to the enjoyment of travel, not unlike the increased pleasure some people have in activities like exercise or shopping when it is shared with another. Other examples of overlapping categories include dogs in an office environment, or dogs that attend meetings and/or social functions with their handlers, being classified as working at these times. This attitude may be linked with the issue of appearance, as not only does the way a dog looks reflect on the image of the handler, so does its behaviour.

11.2.2 Training of the handler-dog team

- *What are the handlers' attitudes towards training with a guide dog?*

Handlers were satisfied with their training experiences and had good relationships with the instructors. Most participants preferred to be trained to work with their new dogs at home (domiciliary), as this was convenient and less disruptive to people's routines, while others preferred to be trained in a residential programme, as they could focus on their training and found the support from other handlers to be beneficial. (The training venues are explained in Chapter 3, section 3.4.6). Each of the three factors: training venue other than domiciliary, satisfaction with training, and the relationship with the instructor was associated with better matches. A regression analysis of the combined items showed that the overall model was significant, but no single item could predict the outcome of matching success, presumably because the items were too highly correlated.

The importance of a good instructor-client relationship supports the opinions of Andersen (1998) and P. Hooper (Guide Dog Instructor, RNZFB's GDS, personal communication, May 2000) who suggested that a handler's incentive to succeed with a match may be influenced considerably by the instructor and that the ongoing role the instructor plays is as important as making an appropriate matching decision. The finding that domiciliary training was associated with an increased likelihood of an unsuccessful match was unexpected in light of the participants' preferences. Conceivably, handlers who are well oriented to their home environment may be less likely to trust the dog to make travel decisions, thus leading to a breakdown in work or inhibiting bonding. However, a confounding factor might be that at some times in the past only domiciliary training was available, while at other times only residential training was offered.

In this sample, more people trained with their second dogs during the era of domiciliary training and more second dogs than first dogs were considered mismatched. Although not shown statistically in the present study, it is possible that peer support helps people deal with the loss of the previous dog and/or the interactions between the instructor and several handlers may be different from that of the one on one exchange that occurs during domiciliary training. However, it cannot be established that all other factors remained relatively stable at this time, and third dogs, which were also matched during this era, appeared to have a better outcome than second. Therefore, a thorough investigation of the RNZFB's GDS' database is required before attributing successful matches to residential training and unsuccessful matches to being trained at home. The reasons why second dogs are favoured less than first or third dogs will be discussed later in this chapter.

11.2.3 The working partnership

Fulfilment of expectations

- *Is there a significant relationship between how well the handlers' expectations were met and matching success?*

The majority of the handlers' expectations were met or exceeded for all categories of dog usage and behavioural and physical characteristics. This finding backs Steffans and Bergler's (1998) comment that the support provided by guide dogs surpassed the initial high hopes of the handlers, and is also comparable to the number of pet owners whose expectations regarding dog ownership are met (Salmon & Salmon, 1983).

The fulfilment of expectations was positively associated with matching success. This relationship remained significant when the level of compatibility, which is discussed later in this chapter, was taken into account. Although instructors consider the handlers' expectations when making a match, it may be fruitful to ensure that the handler is fully aware of what it means to use a guide dog and to counsel handlers about their options and expectations, as dogs that did not live up to expectations were significantly more likely to be considered mismatched.

Guide dogs were reported to exhibit good and bad behaviours, which were mainly work related, and good and bad physical characteristics that mostly did not concern work. Desirable behavioural characteristics reflected the handlers' expectations, and undesirable behaviours included problems regarding guiding tasks, being distracted by other dogs, and the dog being unwilling or unable to work well. Satisfaction regarding physical attributes also mirrored expectations, and undesirable characteristics included health problems, shedding of hair/grooming requirements and dogs being too big.

The majority of dogs exhibited behaviours that were problematic for their handlers. Most of these problems remained unresolved regardless of whether or not help was requested and/or received from the RNZFB's GDS. Dogs with physical problems were a minority, but handlers were more likely to report these to the RNZFB's GDS than behavioural problems. This trend may be because behavioural problems potentially involves the handler, whereas physical problems are more likely to be solely dog related and are therefore easier to 'admit'. Physical problems were only marginally more likely to be resolved than behavioural ones. Although no dog was rejected without the RNZFB's GDS trying to rectify the situation, dogs whose behavioural and physical problems were unresolved or unimproved were significantly more likely to be considered mismatched. However, these outcomes may not predict matching success as they could be outcomes of the quality of the match and not have been known beforehand.

Unexpected benefits

Virtually all handlers reported unexpected benefits, especially from their first dogs, which mostly related to non-work situations such as enhanced social function, companionship, independence and self-esteem. Handlers were also surprised at how

good dogs could be as mobility aids. Although not a predictor of matching success, handlers who received unexpected benefits, regardless of whether they pertained to work, were significantly more likely to be successfully matched than those who did not. If, as indicated, having low expectations equates with high matching success, it may be beneficial to keep expectations from becoming inflated. This would not be easy, as guide dogs are often in the public eye due to the influence of the media and marketing strategies within the guide dog organisations, and are subsequently perceived as a cure-all by many.

Compatibility

- *Is there a significant relationship between compatibility and matching success?*

The level of compatibility between a handler and a dog was quantified by combining both work and non-work aspects of the relationship, and was associated with matching success. When combined in a regression model, both compatibility and the fulfilment of expectations independently predicted matching success and explained a reasonable amount of variance for this outcome. This suggests that the two scales were measuring different aspects of the relationship and that both were important for success.

- *Do factors relating to both mobility (work related) and non-mobility (not work related) have a significant effect on matching success?*

When compatibility was technically separated into aspects concerning work and non-work, both made significant and independent contributions to matching success. Work (i.e. how good the dog was as a mobility aid and how well the handler could control the dog) was the greater predictor of a successful outcome. This supports the views of guide dog professionals (Farrugia et al., 1998; Misso, 1994; L. Hornsby, Operations Project Manager, Guide Dogs for the Blind Association, personal communication, September 1999) who suggested that it was important for a handler to assume leadership in order to successfully direct a dog's work. Non-work related issues (i.e. companionship, the dog's effects on social interactions, the emotional bond and motivation to succeed with the match), which guide dog professionals also consider when making matching decisions (Farrugia et al., 1998), were also shown to be important for success. Although there is qualitative and anecdotal evidence on the benefits of using a guide dog (i.e. mobility and independence (Oxley, 1995), companionship (Harland, 1992), the emotional bond (Holdsworth, n.d.), and social-interactions (Lane et al., 1998; Muldoon,

2000), it is believed that this is the first attempt to statistically identify how work and non-work factors impact on the match.

Bonding

Most handlers bonded emotionally with their dogs and achieved a good working relationship. It took around three and a half months for the bond to form initially, whereas it took an average of six months to establish a good working relationship. The latter finding supports the comments made in the focus group about good working relationships taking six months or more to achieve, but that perseverance usually paid off. The following is an account of an instructor's conversation with a new handler ("Blind Trust", 1999, p. 102): "You will soon be thinking that you and your dog are really working well together. Later you will discover it takes 6-12 months before you two fully bond". This suggests that the bond and the working relationship continue to strengthen even after the handler feels a bond has developed. As will be discussed later in this chapter, the largest number of dogs (mode) that were rejected for behavioural problems were returned after just three months, presumably before a bond had developed. Therefore, a handler who is frustrated with a new partnership should be informed that the working and the non-working relationship might take longer than this to improve, possibly up to a year.

Most thought that being preallocated with their dog for a week before training commenced was long enough to establish a routine and facilitate bonding, but a longer period was frustrating as the dog could not be used as a mobility aid during this time. For some, bonding with a new dog was compromised if family members got too involved with the dog and/or if the old dog was removed at the time the new one arrived. Little research has been conducted on the subject of bonding, but Odendaal and Meintjes (2003) suggested that the success of the interaction was based on fulfilling the need for attention from person and dog. It is possible, therefore, that some canine temperamental types such as more 'aloof' dogs that are not so dependent on people (Sanders, 1999) will take longer to become emotionally attached to their handlers. These findings may be useful for the RNZFB's GDS when considering when and for how long to preallocate a dog.

Compromise is necessary with all matches and outcomes are often unpredictable. Some handler-dog teams, whose work is expected to reach excellence, may remain mediocre. Holdsworth (n.d.) suggested that this might be due to no real bond developing, and that the converse may also be true, that is, when an individual of below average competence achieves great success with a dog due to the level of confidence and communication between the two. During a discussion of the phenomenon of bonding with S. Bruce and B. Peel (Education & Training Manager and Guide Dog Instructor respectively, RNZFB's GDS, personal communication, May 2000), matching was described as a process of risk analysis and if the instructor was confident that the potential skills of the handler-dog team comfortably outweighed the risks, then a match could be made.

The psychological consequences can be devastating for the person who has formed a strong emotional bond with a dog that must be relinquished (Nicholson, 1993; Nicholson et al., 1995), as was the case in the present study. It is crucial that the instructor recognises and works through problems with the team. However, the capacity of some teams to rise above difficulties should not be underestimated. B. Peel's observations led him to believe that the bond might form quicker if a handler is in poor health, and Holdsworth (n. d.) stated that just as the person's temperament affects the dog, the physical well-being of one has been known to affect that of the other. It was proposed by S. Bruce and B. Peel that discord in a relationship might be the catalyst for harmony, whereby the handler and the dog work through a problem together, thus strengthening the bond. Therefore, whenever a problem that does not preclude matching exists, the handler should not only be fully informed of the situation, but could also be involved in rectifying it. For example, a handler could avoid a known problematic working environment until the dog gained confidence.

Quality of life

- *How does the use of a guide dog affect quality of life?*

A guide dog improved the quality of life for most handlers due to enhanced social interactions, fitness, mental and physical health, and adjustment to loss of vision. The increase in friendly approaches from strangers was desirable, though it increased travel time, and as suggested in the focus group and by Harland (1992) and Ulrey (1994), the public should obtain permission before interacting with the dogs. Fitness was perceived

to improve mainly due to an increase in independent travel. General and mental health were enhanced as people felt better about themselves. Adjustment to vision loss was facilitated in part because the dog helped the handlers and their families forget the disability, although this was not an issue for a third of the sample who had been blind for a long time before they received a dog and/or had a lot of social support. It is possible that a guide dog replaces social support in those who are otherwise less socially enriched, and as an increase in self-esteem has a positive effect on adjustment to vision loss (Welsh, 1997), the use of a dog may also contribute to this process. For some, a guide dog did not improve quality of life because they had social support, other pets, good long cane skills, were not emotionally attached to the dog and were "used to" being blind.

Confidence, motivation, and self-esteem were reduced when an unsuitable dog was received, or a dog was retired or died. These effects were also found in children (Bryant, 1990) and adults (Cain, 1983; Sharkin & Knox, 2003; Weisman, 1991) who mourned the loss of a pet. The issues surrounding the loss of a companion will be discussed later in this chapter along with other problems that arise at the end of a partnership.

These findings provide an insight into the negative as well as the positive effects of guide dog usage on quality of life. They support the unpublished theses findings of Delafield (1974) and Harland (1992), and of Jackson et al. (1994) and Refson et al. (1998, 1999) of a substantial increase in quality of life due to enhanced mobility, independence, confidence, mental and physical wellbeing and better adjustment to sight impairment, as well as desirable (Muldoon, 2000) and undesirable effects (Ulrey, 1994) on social interactions. The results also support views represented in the focus group discussion. A novel finding from the present study was that no real benefit was provided for a few participants who were mobile, had good social support, and were well adjusted to vision loss. However, this should not influence to whom guide dogs are given, as it would be difficult to identify beforehand those who would not profit.

Other factors associated with matching success

- *What other factors are associated with matching success?*

Motivation

Although many instructors and researchers reason that motivation is central to success with a guide dog (Carlson, 2000; Farrugia et al., 1998; Fuller, 1976; Misso, 1994), they have not specified whether this is motivation to acquire a dog and/or motivation to succeed with a match. In this study, both aspects were measured, as part of the construct of compatibility. Motivation to acquire a dog was significantly and strongly correlated with the handler's perceived need for a dog, but not with any other factor, including overall compatibility. Motivation to succeed with the match had a strong relationship with overall compatibility. Therefore, it appears that the two aspects of motivation relate to different outcomes. These results indicate that no matter how much a person feels they need or want to get a dog, this does not necessarily lead to compatibility.

In addition to the relationships between (a) how well the handlers' expectations were met and matching success, and (b) compatibility and matching success, other variables of interest in the dataset were screened for inclusion in a model to predict matching success, as recommended by Hosmer and Lemeshow (2000). These relationships are described below.

Demographic

Ownership of pets or demographic factors, as described in Table 9.8 (Appendix E), including sex, ethnicity, age, breed[1] and sex of dog, marital status, education, employment, and household members were not associated with matching success. In addition, the findings did not support Carlson's (2000) suggestion that people who have recently moved to another house may be at more risk of an unsuccessful match due to compromised orientation and the dogs' requirements for a stable home environment. However, consideration for people who re-locate was discussed during the focus group, which backs Carlson's conclusion as it concerns the importance of dogs that can cope with lifestyle changes such as different housemates and working environments.

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[1] To facilitate analysis, the categories of dog breed were collapsed into (a) the more conventional breeds or (b) all others. Further work on a larger sample would be warranted to examine the relationship between individual breeds and the outcome of the match.

Vision

The age at which vision was lost, whether this was congenital or acquired (adventitious), total or partial, and how long vision loss occurred before getting a guide dog were not associated with matching success. However, screening analyses showed that two factors had a potential relationship with this outcome. These were (a) the cause of vision loss, where those who had congenital anomalies appeared to have a better chance of having a successful match followed by those who lost their vision later in life either progressively or suddenly and (b) whether there had been deterioration in useful vision over the time a dog had been used. When these two factors were included in a regression analysis, only deterioration in useful vision had a significant relationship with matching success, with handlers whose vision deteriorated over the time a dog was used having better matches. Perhaps handlers with partial vision that is deteriorating come to depend on and/or learn to trust their dogs, due to their increasing need for a mobility aid. However, handlers who are blind or whose partial vision is stable, have different relationships, as they do not experience this change in status.

These findings agree with the only other study found that identified the causes of discontinuance of the partnership (Fuller, 1976), which was conducted as part of a larger study to help Guide Dogs for the Blind, Inc. select suitable pups for future training as guides (Pfaffenberger et al., 1976). Fuller found that the handler's age, cause of vision loss, education, occupation and home environment were not predictive of success, as measured by the duration of the partnership. However, direct comparisons cannot be made between the two studies due to methodological differences. Fuller examined archived records of discontinued partnerships (N = 447), which included statistics on deceased handlers, and did not identify if dogs were considered to have been well matched or not. This contrasts with the present study that investigated current and previous partnerships via personal interview with a different outcome measure for matching success. Fuller argued that the inability to identify handler characteristics that lead to better matches is encouraging, as it confirmed that the selection criteria used to assess eligibility to train with a dog was effective. While this is a sound argument, it is not applicable to the present study, as the RNZFB's GDS' current selection procedure is less stringent, and the reason for not finding associations between these handler characteristics and success is possibly due to good matching decisions being made.

- *Is there a significant relationship between the amount of useful, residual vision and matching success?*

Although there appeared to be an association between the amount of useful residual vision and matching success in the present study, the low number of cell frequencies negated categorical analysis on this outcome. Instead, the relationship between useful vision and compatibility was evaluated (as compatibility correlated highly with matching success), and a small but significant relationship was seen. Participants who professed to have a little useful vision reported the highest levels of compatibility with their dogs, and were significantly more compatible than those who had no vision. Those with a lot of useful vision did not differ significantly from either of the other groups, which may have been due to the small sample size.

Five of the six people with a lot of useful vision were using their first dogs at this time, and these handlers reported the lowest level of compatibility when compared to other handlers using their first dogs. Although the numbers were small, this finding supports the argument made by Whitstock et al. (1997) that having too much vision may be detrimental to the dog's work, due to the handler anticipating manoeuvres, and 'confusing' the dog about its role in making guiding decisions. Therefore, it would be interesting to investigate this relationship with a larger sample to determine its significance.

Workload

The majority of dogs functioned well with their workload, which was of medium volume across several environments. First-time dogs usually worked in a single environment, which suggests that handlers may expand their travel range as they become more experienced, or that dogs have only more recently been given to people with limited workloads.

The main working environment (busy city or elsewhere), amount of work required, and the dog's ability to cope with its workload were associated with better matches according to screening analyses. A combined regression analysis on the former two items was associated with matching success, but neither item was able to significantly predict the outcome. Dogs that did not cope with the intensity of their workload were 33

times more likely to be deemed mismatched, but this was not included in the regression analysis, as this could have been an outcome rather than a risk factor.

The finding that dogs with a more intensive workload were more likely to be successfully matched than dogs that had a limited workload supports the notion that an accurate assessment of workload is fundamental to matching success (Knol et al., 1988). This may be due to dogs that have the better capacity to work (i.e. have high levels of willingness, initiative and consistency) being matched to travellers with a high workload, or because a highly skilled, resourceful dog that is matched to someone with a low workload becomes bored, which leads to distractions and a breakdown in work. The latter alternative illustrates how some traits that are essential for good guiding can become a problem if an inappropriate match is made. It may also be the case that travellers with a high workload have good long cane skills, which may be associated with increased matching success. However, the researcher has subsequently examined this theory (unpublished data) and no relationship between the quality of O&M skills before a dog was acquired and a successful match was apparent. While this suggests that long cane skills are not a good predictor of matching success, this does not mean that they are not beneficial, as will be discussed later in the travel performance section.

Friends and family

The proxy results of how the handlers' friends and families felt about the guide dog mirrored those that were discussed in the focus group. Most were positive and supporting and had good relations with the dog. The reasons supplied by the handlers for why their friends and family had negative feelings about the dogs included the dog not being welcome in the house or workplace, not liking the dog, feeling undervalued, not trusting the dog to be a safe guide and empathy for the handler if the dog toileted inappropriately or behaved badly socially.

Positive feelings by friends and family were significantly associated with successfully matched dogs, although this could not reliably be considered a predictor of success. However, two dogs were rejected because of the negative attitudes of the handlers' associates, which indicates that these views can influence the outcome of some partnerships. As far as the researcher knows, these findings are the first to report on the feelings of those close to the handler-dog team, proxy or otherwise.

Handler beliefs concerning matching success

The majority of handlers who were successfully matched with a guide dog believed that this was due to their being compatible with the dog in all respects (i.e. having a dog that was suitable as a working dog and as a pet). However, it was stressed that the partnership was a two-way relationship and both parties had to give and take. Being committed to making a match work and being prepared to put in the time and effort necessary to achieve this goal was important for a good outcome. Unsuccessful matches were attributed to dogs not being adequately trained or socialised, and that not enough care was taken to ensure that personalities and life-styles were attuned.

Handlers thought that an emotional bond should exist between the person and dog in order for the match to be successful. While this is likely, it is not clear if the bond leads to a successful match or vice versa. It could be argued that the bond would not consolidate if the work and non-work needs of the handler were not met. Matching is not absolute; some unsuccessful matches had good points, and few successfully matched handlers claimed to have a perfect dog. What does seem apparent, however, is that the handler and dog should work co-operatively, as the occasion directs. Where appropriate, the handler should be in full control or the dog be permitted to use its initiative to make suitable guiding decisions. Co-operation is the foundation of a successful match (Naderi et al., 2001), and as suggested in the present study this comes from trust and respect from both members of the handler-dog team.

In 1991, Ireson suggested that expectations of guide dog use in the UK were rising and people returned dogs more readily than earlier generations of handlers, in the expectation of receiving another. It is possible that this theory also applies to New Zealand. Although the same percentage of dogs were considered mismatched before and after the managerial restructure in 1988, only one of the 19 dogs matched before 1988 (when fewer dogs were available) was returned prior to the restructure, thus indicating that handlers returned their dogs less often at that time. Handlers may be more likely to return dogs nowadays as there are more dogs being trained and hence obtaining a replacement dog is feasible, which was not the case before and so handlers 'soldiered on' or did without. It is also possible that the recipients were selected more stringently in the past with regards to need, mobility skills, visual status etc. However, this could be disputed because although only one dog was returned prior to the restructure, several

more that had been matched under the old system, were returned once the new system was in place. Most of these dogs were returned for behavioural problems and not for age related health problems that may have explained the late return.

The fieldwork associated with this research suggested that the guide dog colony appeared to have more health issues in recent times than in the past, especially skin problems. There was no corresponding rise in the small number of dogs in this study that were returned for health problems. However, only the main reasons for return were considered and it is possible that health issues were also a major, albeit secondary, concern. An in-depth examination of the RNZFB's GDS' records to identify health problems and establish if these are a growing concern would be invaluable for making matching decisions, and for the breeding programme if these conditions were heritable.

Travel performance

- *Is there a significant difference between the handlers' evaluation of their travel performance before and when they used a guide dog?*

Anecdotal accounts suggest that the guide dog is an effective aid to mobility and increases independent travel (R. T. Edwards, 2002; Ireson, 1991; Lambert, 1990; Purves & Godwin, 1981; Stead, 1997; Warnath & Seyfarth, 1982), and guide dog handlers are reported to have better mobility than other blind or sight impaired travellers (Clark-Carter et al., 1986; Gray & Todd, 1968; Refson et al.'s, 1998, 1999; Refson, Jackson, Plant, et al., 2000) and to prefer the dog to other mobility aids (Steffens & Bergler, 1998). However, with the exception of Delafield's (1974) longitudinal study on six subjects in the UK, no one else appears to have measured change in travel performance from pre to post guide dog usage within the same sample.

The participants in this study considered their travel performance to be better when using a dog that was considered a satisfactory mobility aid than before they acquired a dog, or when using a dog considered to be an unsatisfactory aid[2]. These findings were upheld regardless of how good participants rated their O&M skills to be before acquiring a dog. Although 'good travellers' rated their travel performance highly before

[2] The definition of an unsatisfactory dog in the travel study was discrete from dogs that were unsuccessfully matched. That is, some dogs that were considered unsatisfactory as mobility aids were classified as successful matches, and vice-versa.

they got a dog, it was considered significantly better when using a satisfactory dog. 'Moderate' and 'poor' travellers also rated their travel performance significantly better with a satisfactory dog than before. There was almost no difference in the way the three groups rated their travel performance with a satisfactory dog although there were distinct and significant differences between the groups when rating their travel performance before getting a dog. Hence, those who rated themselves as poor travellers appeared to gain the most from the use of a dog.

This finding is important, as it is thought that it is "best for guide dog (*sic*) handlers to have good O&M (*sic*) skills if they are to be effective travellers" (Whitstock et al., 1997, p. 272). This attitude is shared by some guide schools whose clients are believed not to be able to achieve success with a dog without prior long cane training (Brooks, 1991). However, in the present study the professed degree of O&M skill before obtaining a dog did not appear to have any effect on the perceived level of travel performance with a satisfactory dog aid (nor seemingly on whether dogs were considered to be satisfactorily matched). This finding supports the comment made by I. Cox (General Manager, RNZFB's GDS, personal communication, December 1999) who believes that for some people having poor or no long cane mobility skills may not be detrimental to travelling with a guide dog, although in order to travel safely applicants should be well oriented to their usual destinations. This suggests that O&M could be evaluated as two discrete skills, as although long cane mobility skills are useful, they may not be essential. However, travellers who have dog and cane skills are more versatile as they have a choice of mobility aids to fit the occasion, that is, when it is impractical to use a dog, and can remain independently mobile if the dog is unwell or retired before a replacement dog is acquired (Brooks, 1991). It would be worthwhile to further investigate the level of O&M skills, both combined and as separate entities, required for an applicant to be successful with a dog as there are many levels of success depending on a traveller's workload. Ideally, this should be done objectively and longitudinally, where real and not perceived change is measured, and over real time before and after a dog is acquired.

There was no significant difference between participants' ratings of their travel ability before they travelled with a dog and when using an unsatisfactory dog. This was surprising as one would expect that an unsatisfactory dog would be less effective than

other mobility aids. However, this may be explained by the differences in travel performance between those who considered themselves poor, moderate or good travellers before acquiring a dog averaging out across the groups. A comparison of travel performance indicated that the mean score for poor travellers increased (+6) when using an unsatisfactory dog almost as much as it decreased for moderate (-2.8) and good travellers (-4.2) combined.

Similar to Delafield (1974), the present study found improvements in mobility in terms of stress and safety when a dog was used; but unlike Delafield, travelling with a dog was found to be more efficient than when travelling with other mobility aids. This difference may be due to the greater variation in travel skill among participants in this study, as formal O&M training is not mandatory for guide dog applicants in New Zealand, but would have been for the subjects in Delafield's (1974) UK study. However, anecdotal support for an increase in performance and efficiency is offered by Lambert (1990, p. 158), who, although he was an accomplished long cane traveller, wrote:

> For me, working with a dog guide has meant the difference between walking 2½ miles per hour under constant stress and walking 3½ miles per hour in a confident and relaxed mood. It has represented a difference between feeling proud and confident and feeling proud and confident, and very efficient.

Changes to travel habits

- *How does the use of a guide dog affect travel habits?*

Before getting a dog, sighted guides and long canes were the mobility aids used by most participants, with the long cane being used more frequently. Once a dog was acquired, almost all the participants preferred to use the dog as their primary mobility aid, although sighted guides and long canes were still used on occasion when it was more convenient. This pattern of use is similar to that discussed by Steffens and Bergler (1998).

Participants in the present study travelled more often and further once they used guide dogs. Those with poor long cane skills were more confident with than without a dog, but those with good long cane skills also perceived travel to be easier, faster, less stressful and more enjoyable. In addition to confidence and self-esteem, and as

previously mentioned, the enjoyment of having a travel companion, there are other reasons for a person to travel more with a dog than without. These include the dogs' needs for exercise and toileting, or, for example, because a person's place of work may have moved to a further location. However, this study clarified that travel increased because people wanted to travel more and because they were capable of doing so, and not because they must.

Travel to some destinations and through specific environments was avoided before and after a dog was acquired, although for different reasons. More journeys were avoided without a dog, but the dog was not a panacea for carefree travel; places where other dogs might interfere with the guide dog's work were avoided, as was travelling in bad weather to avoid the inconvenience of a soiled dog. Dogs were not always welcome in others' homes or cars, and were too large to fit comfortably on public transport. However, the dog facilitated independent travel for all those who did not travel independently before acquisition, and for those who did, the dog enabled travelling in the dark or walking just for pleasure. Congested areas remained a problem for any mode of travel. Participants had more problems finding doorways and gaining entry to public transport without a dog, but despite the provisions in law, problems were still encountered when accessing some public places with a dog in terms of being denied permission to enter.

Advantages and disadvantages

- *What are the advantages and disadvantages of using a guide dog?*

Many more advantages than disadvantages were listed for the use of a guide dog. Most advantages related to the dog's abilities as a mobility aid and facilitator of independent travel. However, as for other service dogs and pets, the dog was also important as a companion and a catalyst for social interactions, and they added to one's sense of self-worth (Eddy et al., 1988; Hart et al., 1987; Messent, 1983). Steffans and Bergler (1998) and Refson et al. (1999) reported similar advantages concerning guide dogs in terms of categories and frequency of response, which agree with the anecdotes of many blind or sight impaired travellers (R. T. Edwards, 2002; Ireson, 1991; Purves & Godwin, 1981) and the findings of the focus group.

Most of the disadvantages related to the demands of having and caring for an animal, which have also been noted to affect owners of other service dogs (Valentine et al., 1993) and pets (Fifield & Forsyth, 1999). Other disadvantages quantified in the present study and by Refson et al. (1999) included distress at the end of a partnership with a guide dog and problems associated with having the dog in social situations. These disadvantages were also reported in the focus group and other qualitative studies (Harland, 1992; Miner, 2001; Sanders, 1999). In addition, the present study noted that the handlers' cane skills deteriorated through a lack of practise, and travel was less safe if the dog did not perform well because the handlers, who had no cane to locate the shoreline[3], lost orientation. In contrast to pet owners, guide dog handlers did not mention a lack of space, rental agreement restrictions, disgruntled neighbours or worry about welfare (Bergler, 1988), roaming, fighting (Stafford et al., 2003) or unwanted litters of pups.

The fact that similar advantages and disadvantages have been reported by various sources using different methodologies suggests that these are key areas associated with the use of guide dogs, at least in western cultures. Disadvantages found in non-western studies included guide dogs being viewed by the public as dirty and handlers feeling different from their neighbours (Deshen & Deshen, 1989; Nippon Foundation for the Blind Research Overview, 1998).

The outcome of the partnership

- *What is the outcome of the handler and guide dog partnership, and why are some partnerships unsuccessful?*

Most dogs in this study were successfully matched. Partnerships ended for one of three reasons: the dog retired[4], it was returned[4] (whether mismatched or not), or it died. Over a third of dogs were returned in total, primarily for problems concerning the dogs' behaviour, followed by canine health problems. In addition, three handlers returned their dogs for personal or social reasons. Fewer dogs were returned for work related reasons than for non-work.

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[3] The shoreline technique is a method of establishing orientation where the cane is run along the edges of footpaths, walls or fences.
[4] These terms are defined in the Glossary of Terms.

As mentioned above when defining matching success, not all the dogs that were returned were considered to be mismatched, and vice-versa. Just over a quarter of dogs were considered to be mismatched, but only a fifth of dogs were returned for this reason. As for returned dogs, the reasons dogs were considered to be mismatched related more to the dog than the handler, and problems were behavioural rather than physical. Unlike returned dogs, however, more dogs were considered mismatched for reasons that pertained to work than for non-work. This discrepancy was due to a number of dogs being returned, despite being considered successfully matched, for health reasons. The main work related category that mismatched dogs were returned for was distraction/aggression to other dogs, but the largest single problem was poor social/home behaviour. Other reasons included a low capacity to work, not coping with the workload, incompatible speed and problems with specific guiding tasks. As may be expected, the reasons that dogs are returned (whether mismatched or not) correspond with what handlers said they liked the least about their dogs.

Dogs that the handlers declared to be mismatched were almost 10-times more likely to be returned than those successfully matched. However, some handlers kept dogs that they thought were mismatched because they were emotionally attached to the dog, had enough vision to compensate or were inexperienced. This was more likely to happen for first-time dogs than second ones, which will be discussed later in this chapter.

Successful partnerships lasted for an average of six years, with the largest number of dogs (mode) being returned after 10 years of service. This is lower than the average of seven years reported by Nicholson et al. (1995), especially when considering that the dogs in Nicholson et al.'s UK study automatically retire (if still working) at 10 years of age, which is not the case in New Zealand (as explained in Chapter 3, section 3.4.7). However, the present study included dogs that had previously worked with other handlers and had been rematched, and it is possible that Nicholson was referring to successfully matched dogs that had worked with only one handler. In the present study, excluding one dog that worked for six years before being returned for behavioural problems, mismatched dogs worked for 10 months on average, but the largest number (mode) were returned after just three months.

Despite the methodological differences described earlier, these findings are similar to those of Fuller (1976) who reported that most failures were returned within the first year, and that several dogs were returned for behavioural problems after five years of use. Although not stated by Fuller, it is possible that these late returns were due to replacement dogs becoming more readily available at that time. Fuller indicated that returns were due to handler related reasons one third of the time, and the remainder for dog related reasons, with physical incapacity or death being the major factor in both categories. Both studies show that the number of returns because the handler has personal or social problems is small, but results differ in that Fuller (1976) reported more dogs stopped working for health (59.4%) than for behavioural problems (7.4%). Adjusting for the inclusion of the human's physical incapacity or demise as reasons for partnerships to end, the number of dogs returned for behavioural problems in the present study (22%) was double Fuller's figures (10.2%). This finding supports Ireson's (1991) theory of dogs being returned less often by previous generations of handlers. However, it could not be ascertained what the specific behavioural problems were in Fuller's study, nor whether they related to work and/or non-work.

Fuller (1976) found that bitches worked for longer than male dogs. A corresponding analysis in the present study upheld this trend; however, the sex of the dog did not have a significant effect on the success of the match. Fuller did not find a relationship between the guide dog trainers' ratings of dogs and causes for discontinuance. He concluded that this was due to the quality of dogs produced being uniformly high, and it not being possible to tell if dogs that were returned were poorer performers, as they may have been required to work under difficult conditions, or if handlers were unwilling to tolerate a weakness. It does, however, mean that these dogs were incompatibly matched with handlers.

The number of dogs in the present study that were unsuccessfully matched (26.3%), and returned for this reason (19.5%) is comparable to the 25.4% that were withdrawn in Nicholson (1993) and Nicholson et al.'s (1995) one UK study. These researchers did not define the reasons dogs were withdrawn. However, conversations with guide dog professionals at conferences and seminars attended during the course of this research, suggests that these findings reflect the outcome of contemporary guide dog programmes around the world in terms of numbers, reasons and trends. These numbers also relate to

the 16% of dogs adopted from animal shelters in New Zealand returned for unacceptable behaviours (Stafford et al., 2003). Breakdowns in the owner-pet relationship may occur because the owner has unrealistic expectations of the role of a pet and/or is ignorant of breed-specific behaviours, and the time and money required for maintenance (Kidd, Kidd, & George, 1992). Although guide dogs are provided free of charge in New Zealand and the RNZFB's GDS protect the dogs' welfare in cases of hardship, the use of guide dogs can be expensive. Intriguingly, the return rate of dogs is analogous to the 29.3% (Scherer, 1996) abandonment rate of assistance technology devices (excluding dogs). Scherer found that the most influential factor was a change in needs/priorities of the user, but that the user's input into the selection of the device was important for a good outcome.

As established, guide dogs are important for work and non-work reasons, but people acquired them mainly for mobility, and mobility had the greater association with a successful outcome. Therefore, as an alternative to comparing the relationships between people and guide dogs to people and pet dogs, future research could be modelled on the relationship between people and working dogs. There is a dearth of literature on this topic, but a study that evaluated the relationship New Zealand police handlers had with their dogs (Kyono, 2002) indicted that 40% of dogs were removed from their initial handler to a second, presumably more suitable handler. Like guide dogs, police handlers rated their second dogs as being poorer matches than their first, but no reasons were given to support this.

Only the main reasons dogs were returned were identified in the present study. Almost all dogs returned for behavioural issues had multiple problems that related to work and non-work. Some of these problems were probably sufficient to warrant return on their own. Future research could establish if handlers return dogs due to an accumulation of problems and if these problems interrelate. For example, if a dog's level of anxiety increases during its working life, the pace at which it walks may increase resulting in an incompatible match. In addition, an anxious dog may be overly sensitive and have poor social/home behaviour, that is, multiple problems stemming from the same underlying concern. Physical attributes such as breed or size may also be linked to behavioural problems. For example, large dogs may be too strong if inclined to pull through the harness. A breed-specific behavioural problem, which confirms the importance of

educating handlers about their choices and expectations, is epitomised by the handler who thought, "everything will be alright if only my next dog is a Poodle". However, when this eventuated, the Standard poodle was described as "dizzy" and "unfocussed", and was subsequently returned for this and other behaviours common within the breed.

Not being able to walk at their preferred walking speed was of particular concern to handlers in the present study. It was "frightening and uncomfortable to be dragged around" by a dog going too fast, frustrating to be held back by a dog that is too slow, and confusing if speed was inconsistent, as the handler may not know if a dog slowed due to an obstacle or traffic. However, only two of the 31 dogs unsuccessfully matched were returned primarily because of a speed mismatch. This suggests that instructors are adept at matching for speed because (a) they are aware of its importance and (b) because speed is more quantifiable (for human and canine) than many other matching criteria.

An interesting finding was that handlers who returned problem dogs did not feel that they had been mismatched if the instructors discussed the potential for these problems at the time of matching, thus empowering the handlers to make informed choices. A similar concept exists when handlers do not consider dogs with health problems to be mismatched, if these problems were unforeseen. Conversely, handlers were upset and angry if they subsequently discovered they had been matched with a dog that had been returned by a previous handler for a problem that the new handler was unaware of. The guide dog community in New Zealand is small, and a lot of information spreads informally. Therefore, candidness is arguably the best policy for client satisfaction and the opportunity for person and dog to work through problems together may strengthen the bond, as previously discussed.

Although a few studies have described peoples' attitudes towards guide dogs (Deshen & Deshen, 1989; Finestone et. al., 1960; Nippon Foundation for the Blind Research Overview, 1998), and the IFGDSB shares information between member schools, there appears to be no data available on the reasons why dogs are returned, or why matches fail. This may be because some guide dog schools compete with others for clients. However, it would benefit those involved with guide dogs if this information was reported, or gathered and made freely available.

Rematched dogs

Problems between people and their guide dogs are common and, as with pet ownership, relationships often break down. However, a problem for one person may not be a problem for another, and dogs may be returned for reasons that do not preclude them from working with a subsequent handler (e.g. the dog's working speed, or ill health of the handler). Twenty dogs in this sample had been rematched, some twice, with a success rate of 75% (i.e. comparable to that of all the dogs in the sample). The remainder were withdrawn from the programme and rehomed as pets.

No patterns emerged regarding what might constitute success, as both the successfully and the unsuccessfully rematched groups had been rematched for a variety of issues. However, it is apparent that the rematching of dogs is an appropriate use of resources. Most participants were happy with the notion of being matched with a previously used dog, provided they were aware of the dog's history. Fuller (1976) commented that some returned dogs did well when rematched, although he provided no other details. Ledger and Baxter (1997) concluded that successive owners of the same pet dog, which was repeatedly adopted from a UK animal shelter, reported the dog as having different behavioural problems due to their different attitudes and perceptions. Owner attitudes are believed to directly affect behavioural problems in dogs, particularly dominance aggression and displacement/excitement behaviours (O'Farrell, 1997; Podberscek & Serpell, 1997). For these reasons, it would be interesting to compare the experiences of successive handlers of rematched dogs.

11.2.4 The end of the partnership

- *What issues arise at the end of the handler and guide dog partnership, and what effects do they have on a subsequent match?*

Distress

Nearly two-thirds of participants in the present study had used more than one dog. As the transition from one dog to the next is a recurring feature, handlers probably experience the end of more relationships than the average pet dog owner (Nicholson et al., 1995). Retiring a guide dog is not only difficult for the handler, but also for the handler's family and friends, and the dog. The majority of handlers expressed feelings of grief when a working partnership ended, whether it was successful or not. Extreme grief was the feeling most frequently reported and this was shared by family members,

friends and co-workers. The depth of emotion was compared to losing a family member or other loved one – a comparison that was also reported by Fogle (1981) and Stewart (1983) at the end of some person and pet relationships. The distress caused by the end of the partnership between a handler and a guide dog might be more intense than that experienced between a person and a pet (Steffens & Bergler, 1998). This is possibly due to the interdependent nature of the relationship (Bizub, 1998; Sanders, 2000; Zee, 1983), the time spent together and because the dog helps the handler to do things that could not be accomplished alone.

Some handlers described the end of an unsuccessful partnership as a relief, and this was also discussed in the focus group. However, some reported anger at being mismatched, shock in having 'failed', guilt in case it had been their fault, and a few lost self-esteem and confidence. This was true even if the team had not bonded. These findings parallel those of Nicholson (1993) and Nicholson et al. (1995) who found that the end of the partnership was an upsetting experience, even if there had been problems in the relationship. The exception to this was mis-matches that ended after a relatively short period with no real bonding. Besides emotional upset, the present study found that it was troublesome for those who were used to guide dog assisted mobility to be without a dog because their cane skills had deteriorated, as mentioned earlier in this chapter.

The grieving process was easier if handlers were reassured about the dogs' destiny, an outcome also reported in Nicholson (1993) and Nicholson et al.'s (1995) study. This held true whether dogs were being kept as pets or were going to approved retirement homes. As Sanders (1999) illustrated, the latter option was seen as a better alternative for dogs that were not expected to cope with the presence and/or the role of a new guide dog. No dog that had been returned as an unsuccessful match 'retired' with its previous handler or an associate of the handler, thereby suggesting no bond had been formed.

Applying for a replacement dog

The majority of participants said that they would continue to use guide dogs in the future, as they preferred and/or had become dependent on guide dog assisted mobility. Those who did not anticipate using another dog had a limited workload, unsuitable living conditions, family pressure, or did not have a trusting relationship with the RNZFB's GDS. Others, who were undecided, enjoyed not having the responsibility of

ownership, were concerned that they might experience another mismatch or were impartial concerning cane or dog.

Although the grief response was high, this did not preclude most handlers from applying for another dog right away, including those who had experienced a mismatch. The decision about when to replace a dog is personal, but some handlers regretted replacing their dog before adjusting to the loss of the previous one. Regardless, it appears that the need for mobility is the force behind the desire to replace a dog quickly.

Most handlers felt that the end of the partnership with the previous dog had a negative effect on the relationship with the new one. This was due to the old dog being considered a better mobility aid, less puppy-like and the memory of the previous dog inhibiting bonding. Therefore, feelings of grief at the end of a partnership should not be trivialised and the new dog should be introduced in a sensitive manner. Guide dog schools that offer grief counselling/support sessions to enable handlers to share their feelings over the loss of the previous dog have found that these handlers form a healthy relationship and train more quickly with the replacement dog (J. Campbell, Leader Dogs for the Blind, Michigan, USA, personal communication, August, 2000). Thus, the grief response and its expression may in fact be necessary in order for the next bond to form. Currently, the RNZFB's GDS' policy is to offer support on an *ad hoc* basis and no formal grief counselling or support system exists on a national basis, due in part to new handlers being trained in their home environment and not in a residential setting (Butcher, 2000). However, it may be advantageous to offer sessions on a regional basis, especially for those who experience the end of their first partnership, which is favoured over subsequent ones, as discussed below.

A phenomenon that may exacerbate problems when comparing a replacement dog with the previous one is the distortion of memory, that is, when a handler may forget or deny that the previous dog made the same mistakes as the inexperienced new one (M. M. Smith, 1991). This is exemplified in a touching and elegantly written account by a graduate of Leader Dogs for the Blind on her experiences concerning the loss of several guide dogs, and the unrealistic expectation that some handlers may have of new dogs taking over precisely where the old dogs left off:

> Jack was my second dog. As I was training with him, we waited for the [traffic] light to change... I stepped from the curb with confidence. Jack executed a perfect (*sic*) diagonal crossing... (M. M. Smith, 1991, pp.10-11).

Although this experience left the handler "dazed and frightened at the corner", this 'green' dog eventually grew into a conscientious worker and emphasises the importance of patience and understanding within any new relationship.

11.2.5 Trends between dogs

An unexpected finding was that handlers had inferior relationships with their second dogs compared to their first and third dogs. First-time dogs were favoured the most, but there was little apparent difference between the first and third dogs. However, the number of people using a third dog was too low for any differences between the second and third dog to reach statistical significance. Hence, the focus of this discussion will be between the handler's first dog and its replacement.

'Second dog syndrome' was apparent on a number of levels. Expectations were met significantly less often, and handlers were significantly less compatible with their second dogs than their first dogs. More second dogs were returned in total, considered mismatched and returned for this reason than were first time ones, although not significantly so. Moreover, the duration of the partnership was significantly shorter for second than for first dogs. Similar trends were also apparent regarding the handlers' feelings at the end of a partnership. For example, feelings of extreme grief were significantly higher for first than second dogs, and significantly more handlers desired to keep in touch with their first dogs than second.

It is feasible that fewer first dogs were rejected for the same reasons that handlers did not return mismatched dogs, as discussed earlier in this chapter. These include expectations being lower due to people not knowing what to expect (having had no other dog to compare), having enough vision to compensate for dogs that did not excel as mobility aids and being more emotionally attached to these dogs. It is understandable why there should be a 'first-dog effect' in the handlers' affections, as this dog was the one to initialise and/or improve independent mobility, thus being the catalyst for life changing events.

Most first dogs, which were returned, were returned for behaviour relating to work, but second dogs were returned mainly for poor behaviour at home and in other social settings. A possible explanation is that distortion of memory not only affects a handler's judgement of working behaviour, as described above, but handlers may forget the boisterous behaviour of the first dog when it was young, and compare the second dog's non-working behaviour to that of the first dog at the end of the partnership when it had matured.

Handlers with no useful vision were significantly more compatible with their first dogs than their second ones, but this was not the case for those with a little useful vision. These findings cannot be easily explained. Having a little useful vision may buffer the effects of 'second dog syndrome', but it is possible that if the sample size were larger this difference would also have been significant. In addition, it has been established that compatibility within the sample as a whole is significantly lower for second dogs, and functional vision may have nothing to do with the effect.

Future research using more powerful statistical tests on a larger sample would be necessary to confirm the statistical significance of these differences; however, this was not the researcher's main concern. Instead, the researcher wished to focus on the trends and their practical implications for the guide dog industry. In short, the trends indicate that when a handler receives a second dog, this dog is likely to be perceived as second best. This information will be valuable for instructors to help prepare clients who are about to receive a second dog. Knowing that 'second dog syndrome' is a tangible occurrence may alleviate some negative feelings the second dog engenders simply by not being the other dog. This is somewhat typified by the following quote (Harland. 1992, p. 85):

> She was not matched properly for me. If I hadn't had a dog before there's no way I could've coped with her, but she was, oh God she was a difficult dog. She was very, very badly matched...I think she was a man's dog. She was only little, but my God she was strong. She was stubborn, and yet also, saying stubborn, she was also sensitive. She was an excellent dog...but I never really formed the same attachment I did to my first dog.

11.2.6 Suggestions for service delivery

Participants in this study were very satisfied with the services they received from the RNZFB's GDS. However, many had ideas for expanding a guide dog's repertoire of working tasks, and for improving the matching process and services in general. The most common suggestion for additional tasks not related to travel was that dogs be trained to act like assistance dogs where they could retrieve objects, or alert a handler with an auditory disability to a knock on the door or the phone ringing. For the most part, suggestions concerning travel were already part of a typical guide dog's working inventory, but presumably were not being exhibited in these particular cases. An example of this was not wanting a dog to toilet when working.

Around half the participants were happy with the matching process, but around a third knew so little about it they felt ill equipped to comment. The main themes arising from those who commented were akin to the reasons why matches were perceived to fail (i.e. the need for more attention to be paid to non-work related issues such as social behaviour, and matching lifestyle/personality factors). Although the RNZFB's GDS were perceived to be doing a very good job, recurring themes included that the handlers be listened to and their wishes acted on, that it be accepted that the dog may be at fault and not always the handler, and that handlers should not be made to feel bad for wanting to return a dog.

Although some handlers felt they should be able to specify exactly what dog they want, this might not be possible due to operational reasons such as availability and finance, or the type of dog specified not being appropriate for mobility and/or social needs. However, in order to avoid a mismatch the handlers' expectations should be met to an acceptable level and the handler should feel involved in the decision making process.

11.3 General Limitations of the Study

Design, validity and generalisability

Compromise is necessary with any research design and this limits the conclusions that can be drawn. This study adopted an exploratory approach, as the scope of the research problem was not well defined, and this approach enabled familiarity with the concept of the handler and guide dog relationship and to generate research questions and hypotheses to be tested.

Both qualitative and quantitative methodologies were utilised, where the former was used for depth of information, that is, discovering underlying motivations, feelings, attitudes, values, and perceptions (Kitzinger, 1994), and the latter for breadth. This triangulation of methods appears to have increased the reliability and validity of the study by reflecting the concept of the relationship and deepening the understanding of the area under research. Concerns regarding limitations apply to both methodologies. As discussed above, a primary limitation of the focus group was that participant recruitment was not representative of the population under study. However, the nature of qualitative research necessitates small sample sizes, and the main purpose of this study was exploratory and hypothesis generating rather than hypothesis testing. The quantitative approach was a non-experimental mixed design via a cross-sectional survey, where most of the interviews were conducted by telephone. The study design, which is described in the method chapter (Chapter 6, section 6.2.1), discusses the rational for choosing personal interviews over a postal survey and the inclusion of open-ended questions. As with any non-experimental design, causation cannot be inferred from correlation (Oppenhiem, 1992).

The construct and criterion related validity of the survey questionnaire could not be demonstrated by comparing it with another demonstrably valid measure, as none was available. However, certain steps were taken to help make sense of the findings. The themes that emerged from the focus group helped in the design of the questionnaire and thus provided the survey with face validity. Although content validity depends on established theories for support (Fink, 2003), of which there is little in the guide dog literature, the extensive ethnographic fieldwork undertaken over the course of the study design validated the choice of areas to be explored, and the wide selection of items reflected the intended domain of content.

The survey sample was found to approximate the RNZFB's GDS' estimation of its client base on many demographic characteristics, and covered every geographic region in the country. However, the sample is skewed in that the number of privately owned guide dogs is high due to one participant owning several, and more bitches were represented than are in the RNZFB's GDS' working dog colony. Although this is a sample of volunteers, the high response rate (i.e. 72% of all the RNZFB's GDS' clients at the time) allowed for a random selection to be made from those responding.

Therefore, the results could reasonably be considered to be representative of the population of interest and have good external validity.

Analyses and statistical power

Preliminary assumption checking found no serious violations in the statistical analyses used. However, the sample sizes, which varied depending on the analyses conducted, limited the power of the study. When sample sizes are small, there is an increased risk of incurring a Type 2 error, that is, failing to reject the null hypothesis when it is false, or in lay terms believing that groups do not differ (or no relationships exist) when they do (Pallant, 2001). To avoid inflating Type 1 errors, which are inversely related to Type 2, appropriate alpha levels, with the use of post hoc tests including the Bonferroni adjustment technique for multiple comparisons were applied. Probability values, even if statistically significant, do not inform about the degree to which variables are associated with each other. Hence practical significance was assessed by calculating the effect size using Cohen's (1988) guidelines.

Measurement error and justification for research design

Studies on animal behaviour are limited as we rely on terms borrowed from human behaviour that may fail to reflect what the dog is actually doing (Overall, 2003). As discussed in the literature review on pet ownership (Chapter 2), reliability is contingent upon the ability of those rating the behaviour to accurately interpret the behaviour exhibited (Borchelt, as cited in Jagoe & Serpell, 1996). Therefore, as in other studies that rely on subjective assessment of animal behaviour, the associations may be due to the handlers' perceptions of their guide dogs' behaviour rather than to any real difference.

Likewise, the ratings for travel performance (before and when using a guide dog) were limited by the reliance on the participants' perceptions. It may be assumed that these perceptions are accurate in terms of perceived differences, although it cannot be ascertained how comparable the ratings were across groups or in terms of travel habits. However, it is clear that participants rated their travel performance better with a satisfactory guide dog than before they acquired one or with an unsatisfactory dog regardless of any perceived ability in O&M.

The data accrued from the survey was self-reported. According to Cook and Campbell (1979), the reliability of self-reported data is tenuous, as participants tend to report what reflects positively on their own abilities, knowledge, beliefs, or opinions, and/or what they believe the researcher expects. Other possible biases that influence perceptions, including social desirability (Cone & Foster, 1993) and threat, were minimised by the interviews being conducted privately and the awareness that the researcher was independent of the RNZFB and that confidentiality was assured.

'Clustering' due to multiple dog use did not lead to problems with independence of the data, as verified by the use of the statistical tests described by Snedechor and Cochran (1989) and Brogan (1998), and the Durbin-Watson statistic values. If handlers had been interviewed about their first dogs only, there would not have been a potential problem with independence of the data. However, asking people about their relationships with their guide dogs is an emotive issue, and the pilot study interviews revealed that it would be difficult to dissuade a person from discussing a different dog, especially if that dog was favoured or disliked, without the researcher sounding disinterested or abrupt. Therefore, it was decided to talk to people in depth about all their dogs to establish the degree of trust necessary for participants to feel comfortable offering sensitive information. In addition, it appears that the decision to include all the dogs in the analysis was serendipitous. This approach improved content validity as if only first dogs had been investigated the 'first dog effect' would have led to bias.

Another concern about self-report data centres on whether participants are able to precisely recall past behaviours and events. Cognitive psychologists have warned that the human memory is fallible (Schacter, 1999), and as most of the participants had used more than one guide dog, some from the 1960s, accurate recollection could not be guaranteed. While a prospective design on current dog use would have negated this confounder, this survey was deliberately designed to examine the participants' feelings towards their different dogs, as described above. Given that most dogs were used for a substantial length of time and the intimate, interdependent nature of the relationship described by Bizub (1998) and Sanders (2000), participants seemed well able to differentiate between individual dogs and recall specific feelings and experiences. In addition to the data collected being subjective and reliant on memory, some of the responses were projected. However, the decision to combine these responses with the

more tangible data stemmed from the strength of the participants' desire to have these views expressed and their belief that these views could be projected accurately.

11.4 Research Directions

The results of this study largely came from people who were blind or sight impaired, and who had experienced the use of a guide dog. While this approach was invaluable, and seemed the most sensible base to begin to explore the match, more conclusive research is needed to investigate the viewpoints of the instructors who make the matching decisions and train the handler and dog team, and the trainers who train the dogs to be guides. The combination of the values of the handlers who use the dogs and those of the professionals is likely to lead to a better outcome, as each has a unique perspective to offer. This was illustrated in an illuminating qualitative field study on the interactions between handlers and guide dogs, and between trainers and guide dogs (Sanders, 1999) who suggested that the relationship is more intimate for the former due to the dependency of the association, but the latter also need to understand and be emotionally attached to the dogs they work with in order to be successful at their jobs.

Alternative methodologies of conducting longitudinal studies to evaluate a dog's effect on its owner's wellbeing (Parslow & Jorm, 2003) would be of merit before attributing health gains and other benefits to using a guide dog. During the researcher's fieldwork, one of the instructors used the analogy that people who have received laser treatment to improve vision (so as to avoid wearing spectacles) often subjectively rate their post treatment vision to be better than the ophthalmologist's objective measure, as they 'have' to see better (B. Peel, Guide Dog Instructor, RNZFB's GDS, personal communication, May 2000). It is possible that this kind of comparison occurred in this study, and therefore less subjective measures (i.e. not self-reported) may also be warranted such as those utilised when scoring certain dog behaviours or when assessing the walking speed of a person applying to use a dog. However, it could be argued that perception is reality. This premise is supported by Delafield (1974) who suggested that there is little difference in psychological terms between how people think they are adjusted to vision loss and when judged by more objective criteria.

Conducting a more quantifiable procedure for matching by obtaining objective measures of the constructs used when exploring handler and dog relationships would

not be an easy task, and qualitative methodologies may be more appropriate to explore the meanings associated with the success or failure of the match. It may also be fruitful to conduct prospective, independent matched-pair studies to compare people who use guide dogs with those who do not; however, it is notoriously difficult to match the control group for visual function and acuity, motivation etc. (Delafield, 1974). As guide dogs are used around the world and success is based on many different cultural values and norms, it would be beneficial if multiple, collaborative studies were conducted in these different populations, using a variety of investigative strategies to obtain the best outcome for all.

11.5 Concluding Statement

The results of this study supports much of the existing, but limited, knowledge on handler and guide dog relationships, and novel factors that may be useful for the guide dog industry to consider when making breeding decisions, training and predicting matching success have been identified. This research is unique in that it examined many aspects of the relationship on a sizeable portion of a population and has extended the work of others by identifying factors that are important for a successful match and ongoing satisfaction with the relationship. Other novel findings include how the use of a dog affects travel performance and habits, and that the outcome of the relationship is different for subsequent dogs.

In summary, most matches were successful and using a dog improved quality of life for most participants. Around a quarter of matches were considered unsuccessful, but just under a fifth were returned for this reason. Mismatches were mainly due to problems concerning the dogs' working behaviour followed by the dogs' social/home behaviour. Compatibility and how well the handlers' expectations were met were positively associated with better matches. Although factors relating to mobility made the biggest contribution to success, non-work related issues were also significant. Other factors that seemed to be associated with a good outcome included an accurate assessment of workload, a good instructor-client relationship, and having a little useful vision - especially if this deteriorated over the time a dog was used. Dogs were also shown to improve travel performance, regardless of how well travel ability was perceived before the dog was acquired, and that second dogs were less favoured than the first ones.

These findings have made a useful contribution to the field, from which there is little theory to draw, and has added to a small but growing body of literature on the topic. However, further research is needed to expand on the knowledge gained from this study, ideally in collaboration with guide dogs schools internationally to include different cultures, beliefs and experiences.

The issues surrounding matching and the relationship between a handler and a guide dog are complex, and a sound understanding is important for a good outcome. Many guide dog schools have expanded their criteria concerning who is eligible to apply for a dog. Hence, present day clients have more health problems and disabilities than was previously the case, and as there is no upper age limit, age related problems can create extra challenges when matching and managing the handler-dog team (Wilby & Brooks, 1998). Good breeding, selection, training and matching decisions are clearly being made, which may account for not finding any associations between handler and dog demographic characteristics and success. However, the following points identify factors that may influence the match, and suggestions for the guide dog industry are proposed.

Relations with the RNZFB's GDS

- *Having a good relationship with the instructor is important, as no matter how much people feel they need or want to get a dog, this does not necessarily lead to compatibility. However, once matched, motivation is central to success, and this can be encouraged by a supportive instructor during regular follow-up.*

- *The quality of communication is also fundamental. Handlers are more satisfied if the instructors are candid about any problem the dog may have, which may even strengthen the emotional bond between the handler and the dog as they work through the problem with the help of the instructor.*

- *More consideration could be given to the feelings of the handlers' close associates, who should be involved in any decision making process along with the handler.*

Importance of compatibility

- *Dogs can be given to handlers with any level of mobility skill, although handlers should have adequate orientation skills to ensure safety. However, dogs are required to be matched appropriately according to workload, and attention should be paid to the handlers' ability to control the dog. Therefore, dogs with a higher capacity to work ought to be given to handlers with more intensive workloads, provided the handler can control this type of dog, which has the potential to use its initiative for its own interests.*

- *Distraction/aggression to other dogs while working is a considerable problem. Particular attention should be paid to socialising the dogs to conspecifics when they are being puppy-walked, and also when training the dog and the handler-dog team. However, this issue may be related to a lack of control on the handler's part and emphasises the importance of an accurate assessment of workload to prevent a dog becoming bored.*

- *Likewise, although partnerships fail mainly for problems concerning mobility, factors such as the dogs' social/home behaviour also need to be emphasised. In addition, dogs should be matched with consideration to the handlers' personality and lifestyle to maximise the benefits of companionship and social interactions.*

- *A little useful vision is not detrimental to success, and may even be of value. However, having too much may lead to problems. This should be considered when matching and training the team. For example, selecting a dog that is not too sensitive and that can cope with the possibility of inconsistent handling. If residual vision is used appropriately it may benefit the team, and so special attention to this during team training would be warranted.*

Educating the client

- *The handlers' expectations should be met. However, these expectations need to be kept to a realistic level by way of education, as handlers whose expectations are not fulfilled are less likely to be happily matched.*

- *Handlers who wish to return their dogs in the first few months should be counselled that an emotional bond may take longer than this to form and this may continue to strengthen along with the working relationship for up to one year.*

- *Handlers who are about to receive their second dog should be informed that 'second dog syndrome' appears to exist, and that it is normal to favour the first dog and to forget that problems may have occurred early in that relationship. Nonetheless, this should not preclude handlers from having a successful relationship with a second dog.*

- *The end of the partnership causes marked distress for most handlers, which should be treated sensitively by the instructors. However, allowing a handler to grieve may be important for the success of the new partnership. In light of 'second dog syndrome', a national system for grief management should be made available.*

Nearly every participant in this study was matched successfully at least once, and most dogs that were rematched went on to have a good relationship with a different handler. This shows that the success of the handler and guide dog partnership does not solely depend on either the person or the dog, but relies on the interplay between them, that is, the match.

" I wanted to be more independent, and I expected that getting a dog would give me more freedom, but when I got Orissa, I felt like a little bird being let out of its cage... wonderful."

Quote printed with permission from Marie Pilbrow (February 2002) who received her first guide dog at 75 years of age.

Marie Pilbrow and Guide Dog Orissa
Christchurch, New Zealand
2000

Picture reprinted with permission from Marie Pilbrow and the Royal New Zealand Foundation of the Blind.

Appendix A
The Survey Questionnaire

The Guide Dog & Handler Survey Questionnaire

Introduction to Interview

- Introduce self as researcher.
- Ask if this is an appropriate time to conduct the telephone call. If not, arrange for a suitable time and record below. If suitable, read the following...

Thank you for agreeing to participate in this survey designed to help understand the changes that using guide dogs makes in peoples' lives and what constitutes a good match. The questionnaire consists of six sections that ask about: you, your guide dog/s and pets, your expectations and outcomes of using a guide dog, mobility, compatibility with your dog/s, the dogs' affects on overall quality of life, and will finish up by asking for your suggestions concerning the services you receive from GDS.

I anticipate that the entire questionnaire will take between one and two hours to complete, depending on how many guide dogs you have used. I appreciate that this is a very long time, so please feel free to let me know when you have had enough and we can reschedule the remainder at a time convenient to you.

Please remember that I am not an employee of the RNZFB, and everything you tell me will be combined with information from other guide dog handlers so that you cannot be identified, unless you give me permission to do so. Therefore, you may be as open as you wish.

Are there any questions you would like to ask before we begin?

New time for telephone/face to face interview (circle): _____

Note: For ease of use, the questionnaire has been written using the present tense. However, the past tense should be used throughout the questionnaire when asking about a previous dog/s or experience, and the present tense for previous or current dog or experience, as appropriate.

Section 1 - General

This first section asks general questions about **you, your vision, guide dogs** and **pets**.

What is your **gender**? male ☐ female ☐

What **age** are you? _____

What **ethnic group** do you identify with? _____

What is the underlying cause of your **sight impairment or blindness**? _____

How **old** were you when you **lost your vision**? _____

If vision loss was **acquired** (adventitious), was this loss gradual ☐ or sudden ☐ n/a ☐

What year did you become a **member** of the RNZFB? _____

Are you **currently** using a guide dog? yes ☐ no ☐

Are you currently on the **official waiting list** (OWL) for a new dog? yes ☐ no ☐

Please explain why you are on the OWL: _____ n/a ☐

Please explain why you are not on the OWL: _____ n/a ☐

Have you **previously** had a guide dog? yes ☐ no ☐

If yes, what is the **total number of dogs** used, including your current dog? _____

Were you aware that you were **entitled to apply** for a guide dog? yes ☐ no ☐ (why not?) _____

What/whom gave you the **idea to apply** for a guide dog? _____

Did you **apply** for a guide dog **to please**: yourself ☐ others ☐ both ☐ _____ (mainly whom)

'Ideal Dog' – Standards of Guide Dog Use

The next set of questions asks about your **expectations** regarding guide dog use.

Knowing what you know now, please imagine your *ideal* (hypothetical) guide dog:

What would you expect your 'ideal dog' to do for you in terms of **travel** (mobility)?
Please answer in order of importance: _____

What would you expect your 'ideal dog' to do for you in terms of **social-interactions/function**?
Please answer in order of importance: _____

What would you expect your 'ideal dog' to do for you in terms of **companionship?**
Please answer in order of importance: _____

Do you have any **other** expectations of guide dog use? If so, what are they?
Please answer in order of importance: _____

Of the following categories: travel, social-interactions/function, companionship and other, please **rank** in order of most to least important: _____

Knowing what you know now:

What **behavioural** characteristics would your 'ideal' guide dog have?
Please answer in order of importance: _____

What **physical** characteristics (including health), would your 'ideal' guide dog have?
Please answer in order of importance: _____

Of the following categories: behaviour and physical please **rank** in order of most to least important:

_____

Previous Pets

The last items in this section refer to any **previous pets** you may have had.

Before you got a guide dog, were you ever **responsible** for a pet or pets? yes ☐ no ☐

Before you got a guide dog, did you have an **affinity** with animals? yes ☐ no ☐

What **age** were you when you got your first pet? _____ n/a ☐

If applicable, what was the pet **most important** to you **during childhood** (< 12 years)? _____ n/a ☐

End of Section 1

Section 2 - Information on Each Guide Dog Used

The questions you have just completed end the first section. The next set of questions asks a variety of questions about your **first guide dog**, and, where applicable, these questions will be repeated for **subsequent dogs** in the order you used them.

Is this dog your **current** guide dog? yes ☐ no ☐

Are you the **legal owner** of this dog, or does the dog belong to GDS?

Did you and this dog **graduate** as a working team? yes ☐ no ☐

Which **country** was this dog received in? _____

Dog **order** (ascending): _____ e.g. 1st of 3 dogs

Dog's **name**: _____

Dog's **breed**: _____

Dog's coat **colour**: _____

Dog's **sex** (neutered): _____

What year was this dog **born**? _____

What year did you **receive** this dog? _____

How long has this dog **worked** with you? _____

What was the main reason this **partnership ended**? _____ n/a ☐

How long were you on the **waiting list** for this dog (provisional and official)? _____

Was this wait: too long ☐ too short ☐ about right ☐

Training & Workload

Did you have a choice of **venue** where you trained with the dog i.e. home or elsewhere? yes ☐ no ☐

Where were you trained? _____

On a scale of 1-10, overall how **satisfied** were you with the amount and quality of **training** you received?
not at all 1 2 3 4 5 6 7 8 9 10 completely satisfied
Comment? _____

Which of the following **environments** do you require this dog to work in?

rural	yes ☐	no ☐
semi-rural	yes ☐	no ☐
residential	yes ☐	no ☐
semi-business/quiet city	yes ☐	no ☐
busy city	yes ☐	no ☐
other (specify):	yes ☐	no ☐

What is the main environment you required this dog to work in? _____

What **quantity of work** do you require this dog to do? low ☐ medium ☐ high ☐

Does the dog cope well with this **workload** (environment & quantity)? yes ☐ no (specify) ☐ _____

Dog's Behavioural Characteristics

What is *good* regarding this dog's behaviour, in order of importance? _____

What is *bad* regarding this dog's behaviour, in order of importance? _____

What has been done to resolve the problem/s? _____ n/a ☐

Is the problem/s resolved? yes ☐ no ☐ somewhat ☐ n/a ☐

Dog's Physical Characteristics

What is *good*, physically, about this dog, in order of importance? _____

What is *bad*, physically, about this dog, in order of importance? _____

What has been done to resolve the problem/s? _____ n/a ☐

Is the problem/s resolved? yes ☐ no ☐ somewhat ☐ n/a ☐

Outcomes of Expectations

Earlier, I asked about your **expectations** regarding guide dog use; at the time you used this dog, were your expectations regarding…

Travel (mobility):	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐
Social-function:	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐
Companionship:	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐
Other:	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐
Behaviour:	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐
Physical/health:	not met ☐	somewhat met ☐	met ☐	exceeded ☐	n/a ☐

Were there any **benefits** you received from using this dog that you had **not expected**? yes ☐ no ☐

If yes, what were they? _____ n/a ☐

How did/do your **friends and family** feel about this dog? _____

Compatibility

The following questions are designed to measure how **compatible** overall you and this dog are:

On a scale of 1-10, how much have you **bonded** with this dog i.e. an emotional attachment *between* you and the dog?
not at all 1 2 3 4 5 6 7 8 9 10 extremely well bonded

If applicable, how long did it take you to bond with this dog? _____ n/a ☐

On a scale of 1-10, how would you rate your **working relationship** with this dog i.e. the dog's work and how this affects your mobility?
very poor 1 2 3 4 5 6 7 8 9 10 very good working relationship

If applicable, how long did it take to form a good, working relationship? _____ n/a ☐

On a scale of 1-10, how great was your **need** to get this dog?
very low 1 2 3 4 5 6 7 8 9 10 extremely high need

On a scale of 1-10, how **motivated** were you **to acquire** this dog?
not at all 1 2 3 4 5 6 7 8 9 10 extremely motivated to acquire

On a scale of 1-10, how **motivated** are you **to succeed** with this match?
not at all 1 2 3 4 5 6 7 8 9 10 extremely motivated to succeed

On a scale of 1-10, how well can you **control** this dog (working and social behaviour)?
not at all 1 2 3 4 5 6 7 8 9 10 extremely well (controlled)

On a scale of 1-10, how emotionally **attached** are you to this dog i.e. one-way relationship unlike the bond which implies a two-way relationship?
not at all 1 2 3 4 5 6 7 8 9 10 extremely attached

On a scale of 1-10, how **well suited** are you and this dog?
not at all 1 2 3 4 5 6 7 8 9 10 totally suitable

On a scale of 1-10, how satisfied are you with this dog's affects on your **social-interactions/function**
not at all 1 2 3 4 5 6 7 8 9 10 completely satisfied

On a scale of 1-10, how satisfied are you with this dog's qualities **as a companion?**
not at all 1 2 3 4 5 6 7 8 9 10 completely satisfied

On a scale of 1 – 10, overall, how **satisfied** are you with this dog?
not at all 1 2 3 4 5 6 7 8 9 10 completely satisfied

On a scale of 1 – 10, overall, how successful do you feel this **match** is?
not at all successful 1 2 3 4 5 6 7 8 9 10 totally successful

Would you consider this dog to have been mismatched? yes☐ no☐

Was this dog returned to GDS? yes☐ no☐

Why did you **not return** this dog, which you considered to be **mismatched**? _____ n/a☐
Or:
Why did you **return** this dog, which you did **not** consider to be **mismatched**? _____ n/a☐

In your opinion, why is this **match working**? _____ n/a☐
Or:
In your opinion, why is this **match not working**? _____ n/a☐

At the End of the Partnership

The next set of questions pertains to issues that arise at the **end of the partnership**. If you are currently working with your first dog, please feel free to project how you think you may feel at this eventuality.

Select option: actual feelings for previous dog☐ projected feelings for current dog☐

What will happen to this dog after the partnership ends?_____

Will you keep in touch with the dog if possible? yes☐ no☐

How will you feel at the end of this partnership? _____

How long will the loss of this dog put you off applying for a replacement? _____
Comment: _____

And the final question regarding the end of the partnership:

How will the end of this partnership affect your relationship with your next dog?_____ n/a☐

Demographic & Visual Status

I'd like to now ask you some more **demographic questions** concerning the time you **obtained** this dog, including questions about your home and work situation, and vision. Firstly:

On a scale of 1-10, what was your **relationship** with your guide dog instructor?
very poor 1 2 3 4 5 6 7 8 9 10 very good relationship

Did you **move house and location** during the two years before or after obtaining this dog? yes ☐ no ☐

What **age** were you were you obtained this dog? _____

What was your **marital status**? _____

What was the highest level **education** you received? _____

What was your **occupation**? _____

If **employed**, were you: full-time ☐ part-time ☐ n/a ☐

What kind of **housing** did you live in? _____

Was the **property**: rented ☐ bought ☐ live with parents ☐ other (specify) ☐ _____

How many **adults** were in the household? _____

How many **children** were in the household? _____

Excluding this guide dog, did you own any **pets**? yes ☐ no ☐

If yes, how many **dogs**? _____ n/a ☐

If yes, how many **cats**? _____ n/a ☐

If yes, how many **other pets** (please state what species)? _____ n/a ☐

Visual Status

What was your degree of **sight impairment/blindness**?

total ☐
total with light perception/projection ☐
partial w/ central field loss ☐
partial w/ peripheral field loss ☐
partial w/ no specific field loss ☐

How much **useful vision** (for mobility) would you say you had ? none ☐ a little ☐ a lot ☐

Did your **useful vision deteriorate** during the time you used this dog? yes ☐ no or n/a ☐

If yes, please state if vision loss was gradual or sudden, and if dog coped well or not: _____ n/a ☐

And the last question in this section:

If you could choose a **name** for this dog, what would it be? _____

End of Section 2 (repeat as necessary for subsequent dogs)

Section 3 - Guide Dog Rating

This short section asks about your **most** and **least favourite qualities** regarding your guide dog/s.

Note: Choose which of the following questions to ask depending on multiple or single dog use.

For Multiple dog use:

Please name your **favourite** dog: _____

What was the one feature or main quality that makes 'this' dog your favourite? _____

Please name your **least favourite** dog: _____

What was the one feature or main quality that made 'this' dog your least favourite? _____

Or, if only one guide dog used:

What is the one feature or main quality that you like **best** about this dog? _____

What is the one feature or main quality that you like **least** about this dog? _____

For each of the traits mentioned above, please categorise as either **work** or **non-work** related, and whether it is **behavioural** or **physical** in nature.

End of section 3

Section 4 - Travel

This section concerns various issues related to your **travel** (mobility) habits before you used a guide dog and when you use (or used) one. Some questions pertain to *independent travel*, which refers to your use of a mobility aid excluding a sighted guide. If any of the questions are not applicable to you, please let me know.

Non -visual Conditions

I'll begin by asking about any **non-visual conditions** you may have that restrict your mobility:

What, if any, non-visual conditions do you have that restrict or restricted your independent travel?

_____ n/a ☐

On a scale of 1-10, to what degree did these conditions **restrict** your independent travel **before** the use of a guide dog?

very little 1 2 3 4 5 6 7 8 9 10 extremely restricted n/a ☐

On a scale of 1-10, to what degree do these conditions **restrict** your independent travel **when using** a guide dog?

very little 1 2 3 4 5 6 7 8 9 10 extremely restricted n/a ☐

Mobility Aids Used

The following questions pertain to your experiences with **mobility aids** in general.

Before you obtained a guide dog, which of the following mobility aids did you use?

long cane yes ☐ no ☐
electronic aid yes ☐ no ☐
low vision aid yes ☐ no ☐

sighted guide	yes ☐	no ☐
no aid used	yes ☐	no ☐
other	yes ☐	no ☐

Which one did you use most often? _____

After you obtained a guide dog, which of the following mobility aids do you also use?

long cane	yes ☐	no ☐
electronic aid	yes ☐	no ☐
low vision aid	yes ☐	no ☐
sighted guide	yes ☐	no ☐
no aid used	yes ☐	no ☐
other	yes ☐	no ☐
guide dog	yes ☐	no ☐

Which one do you use most often? _____

On a scale of 1-10, how *satisfied* were you with the amount and quality of **long cane O&M training** you received **before** you used a guide dog?

not at all 1 2 3 4 5 6 7 8 9 10 extremely satisfied n/a ☐

Travel Performance Indicators

The next set of questions ask you to rate your independent **travel performance before** and **when using** a guide dog, depending on whether you considered your dog/s to be satisfactory or unsatisfactory mobility aids.

How many of your guide dog/s would you consider to be 'unsatisfactory mobility aids'? _____ of _____.

Where applicable: As you have used more than one dog, please answer in as general a fashion as possible, by providing a single score for all your 'good' dogs and a single score for all your 'bad' dogs:

Note: As the questions progress, define orientation (O), mobility (M), and when used collectively, O&M, as three separate entities. Orientation refers to the ability to establish and maintain an awareness of one's position in space relative to other objects in the environment, mobility refers to the act of purposeful movement using a tool such as a long cane, low vision aid, electronic aid or a guide dog, and O&M refers to the process of travelling through the environment safely and efficiently.

On a scale of 1-10, how would you rate your **O** performance **before** you used a guide dog?

very poor 1 2 3 4 5 6 7 8 9 10 excellent O performance

On a scale of 1-10, how would you rate your **O** performance **when using** a guide dog that you feel is satisfactory mobility aid?

very poor 1 2 3 4 5 6 7 8 9 10 excellent O performance n/a ☐

On a scale of 1-10, how would you rate your **O** performance **when using** a guide dog that you feel is an unsatisfactory mobility aid?

very poor 1 2 3 4 5 6 7 8 9 10 excellent O performance n/a ☐

On a scale of 1-10, how would you rate your **M** performance **before** you used a guide dog?

very poor 1 2 3 4 5 6 7 8 9 10 excellent M performance

On a scale of 1-10, how would you rate your **M** performance **when using** a guide dog that you feel is a satisfactory mobility aid?

very poor 1 2 3 4 5 6 7 8 9 10 excellent M performance n/a ☐

On a scale of 1-10, how would you rate your **M** performance **when using** a guide dog that you feel is an unsatisfactory mobility aid?

very poor 1 2 3 4 5 6 7 8 9 10 excellent M performance n/a ☐

On a scale of 1-10, how would you rate your **O&M** performance collectively **before** you used a guide dog?
very poor 1 2 3 4 5 6 7 8 9 10 excellent O&M performance

On a scale of 1-10, how would you rate your **O&M** performance collectively **when using** a guide dog that you feel is a satisfactory mobility aid?
very poor 1 2 3 4 5 6 7 8 9 10 excellent O&M performance n/a ☐

On a scale of 1-10, how would you rate your **O&M** performance collectively **when using** a guide dog that you feel is an unsatisfactory mobility aid?
very poor 1 2 3 4 5 6 7 8 9 10 excellent O&M performance n/a ☐

On a scale of 1-10, how **difficult** was travelling in general **before** you used a guide dog?
not at all 1 2 3 4 5 6 7 8 9 10 extremely difficult

On a scale of 1-10, how **difficult** do you find travelling in general **when using** a guide dog that you feel is a satisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 extremely difficult n/a ☐

On a scale of 1-10, how **difficult** do you find travelling in general **when using** a guide dog that you feel is an unsatisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 extremely difficult n/a ☐

On a scale of 1-10, how **limited** was your travel in general **before** you used a guide dog?
not at all 1 2 3 4 5 6 7 8 9 10 extremely limited

On a scale of 1-10, how **limited** *is* your travel in general **when using** a guide dog that you feel is a satisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 extremely limited n/a ☐

On a scale of 1-10, how **limited** is your travel in general **when using** a guide dog that you feel is an unsatisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 extremely limited n/a ☐

On a scale of 1-10, how **often** did you travel **before** you used a guide dog?
not at all 1 2 3 4 5 6 7 8 9 10 very often

On a scale of 1-10, how **often** *do* you travel **when using** a guide dog that you feel is a satisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 very often n/a ☐

On a scale of 1-10, how **often** *do* you travel **when using** a guide dog that you feel is an unsatisfactory mobility aid?
not at all 1 2 3 4 5 6 7 8 9 10 very often n/a ☐

What is the main reason you travel more often or further, with a guide dog? _____ n/a ☐

Journey Avoidance & Access (concerning environments, routes and destinations)

Please state any journeys you avoided **before** you used a guide dog? _____ n/a ☐

Please state any journeys you avoid **when using** a guide dog? _____ n/a ☐

Please state any difficulties you had with access e.g. buildings/public transport **before** you used a guide dog. _____ n/a ☐

Please state any difficulties you have with access e.g. buildings/public transport **when using** a guide dog?
_____ n/a ☐

Advantages & Disadvantages of Guide Dog Usage

What are the **advantages** of guide dogs over other mobility aids? _____

What are the **disadvantages** of guide dogs over other mobility aids? _____

End of Section 4

Section 5 - Quality of Life

This brief section aims to explore the affect of using a guide dog on your **overall quality of life** including your health. Please feel free to comment as we go along.

Where applicable: As you have used more than one dog, please answer in a general fashion as possible by combining your overall experiences with guide dogs.

Did the use of a guide dog increase the number of **friendly approaches** by strangers? yes ☐ no ☐
Comment: _____

Did becoming a guide dog handler improve your level of **fitness**? yes ☐ no ☐
Comment: _____

Did becoming a guide dog handler improve your **physical health**? yes ☐ no ☐
Comment: _____

Did becoming a guide dog handler improve your **mental health**? yes ☐ no ☐
Comment: _____

Did becoming a guide dog handler help you to **adjust** to your sight impairment or blindness? yes ☐ no ☐
Comment: _____

Did becoming a guide dog handler improve your **quality of life** in general?
Comment: _____

The next question concerns an issue regarding the end of the partnership. If you are currently working with your first dog, please feel free to project how you think you may feel at this eventuality.

Select option: actual feelings for previous dog/s ☐ projected feelings for current dog ☐

How does being 'between' (or without) a dog affect your quality of life? _____

End of section 5

Section 6 - Service Delivery & Miscellaneous

This is the final section in the survey. To finish up, the following questions pertain to miscellaneous issues regarding guide dog use, and the services you receive from GDS. Again, please feel free to comment.

Do you envisage that you will use/**continue to use** a guide dog in the future? yes ☐ no ☐ don't know ☐
Comment: _____

Have any of your guide dog/s worked as a guide for a **previous handler**? yes (specify) ☐_____ no ☐
Comment: _____

How long do you think a new guide dog be **preallocated**, if at all, to the handler, before guide dog training begins in order to facilitate bonding? _____
Comment: _____

What is your preferred **location**, or locations, in which to **train** with a guide dog? _____
Comments: _____

If given the choice, would you prefer to be the **legal owner** of your guide dog, as opposed to the dog being the property of RNZFB Guide Dog Services? yes☐ no☐ don't care☐
Comment: _____

Did/do you think, your **expectations** change/will change from your first to subsequent dog/s? yes☐ no☐
Comment: _____

If you had known then what you know now, would you have **returned** your first dog? yes☐ no☐ n/a☐
Comment: _____

On a scale of 1-10, overall how **satisfied** are you with the services you have received from GDS to date?
not at all 1 2 3 4 5 6 7 8 9 10 completely satisfied

Is there anything you wish a guide dog could be **trained** to do in addition to the level of work you receive?
yes☐ no☐
Comment: _____

How could the **'matching process'** be improved? _____

What else could GDS do to **improve its services** to you? _____

Well, that's the end of the interview questions! Before we finish, are there any further comments or additions you would like to make? _____

End of section 6

Close of Interview

Thank you so much for participating in the survey. I hope you enjoyed the part you've played in helping to understand what makes a handler-guide dog team tick.

I'll send you a summary of the results once the research is completed. If you have any questions about the study before then or wish to inform me about something, please email or phone me and I will get back to you as soon as possible. [Give contact details if necessary.]

Notes: _____

End of Survey

Appendix B
The RNZFB's GDS' Canine Temperamental, Behavioural & Physical Analysis

CANINE TEMPERAMENTAL, BEHAVIOURAL & PHYSICAL ANALYSIS - PAGE 1/3

General Description & Health

Dogs' Name:							
Speed	Code	Sex	Breed	Sire	Ready	Assessment Start	Qualified
Trainer	Status	Desexed	Colour	Dam	Matching	Training Start	Date Withdrawn
	Location	DOB	Size	Breeder	Side	Dog ID No.	

Sponsorship

Speed Control	Tension (through harness)
Spend (Walks)	**Leash Relieve**
Description of Dog (Puppy Development)	**Description of Dog 5 Walk Assessment**
Specific Concerns during Puppy Development (Toileting, Family)	**Description of Dog 20 Walk Assessment**
Description of Dog in Kennels	**Description of Dog at Training / Pre Matching**
Specific Behaviour in Kennels (Mixing, Grooming Behaviour etc.)	**Description of Best Possible Match (Workload, Environment, Type)**

HEALTH

Skin	
Hips Score	
Hip Comment	
Elbow Score	
Elbow Comment	
Pads	
Hearing	
Eyes	
Gastro-Intestinal	
Dietary Needs	
Heart	
Urinary	
Other Health	

CANINE TEMPERAMENTAL, BEHAVIOURAL & PHYSICAL ANALYSIS - PAGE 2/3

Temperamental Scores & Comments

Dog's Name
Trainer

Nervous
Sound Shy

Nervous Aggression
Idiopathic Aggression

Protective Aggression

Code
Matching

Work Rate

Initiative | Concentration | Confidence | Self Interest
Willingness Handler | Willingness Work | Consistency | Work Load
Excitability | Conscience

Social Behaviour

Home Behaviour | Social Behaviour | Affection Seeking | Attention Seeking
Separation Anxiety | Maturity | Aloofness

Coping

Anxiety (General) | Anxiety (Specific) | Anxiety (Internal) | Anxiety (Accumulated)
Adaptability | Stress
Suspicion (General) | Suspicion (Specific) | Suspicion (Internal) | Suspicion (Recovery Rate)

Sensitivities - Please circle if sensitivity is positive (+) and/or negative (-)

Mental Sensitivity | Submissive/Dominant (Dogs) | Submissive/Dominant (People)
Hearing Sensitivity+/ - | Body Sensitivity+/ -
Visual Sensitivity+/ - | Olfactory Sensitivity+/ -

Distraction - Please indicate if distraction is positive (+) and/or negative (-)

Dog+/ - | Cat+/ -
People+/ - | Other+/ -
Bird+/ - | Food+/ -

Aggressions - Please indicate if Aggression is: Dominant, Apprehensive or Protective

Dog | Cat | Human | Food
Bone | Bowl | Object | Territory
Predatory

Summary

Trainability | Reliability | Matchability | Health (Longevity)
Role Acceptability | Handler Transferability | Temperament Suitability

Key: + = moving towards; — = moving away from

CANINE TEMPERAMENTAL, BEHAVIOURAL & PHYSICAL ANALYSIS - PAGE 3/3

Guiding Tasks

Dog's Name		Code		Matching	
Trainer		Status		Ready	

Right Shoulder Work	
Straight Line	
Off-Kerb Obstacles	
Approach	
Stop	
Takeoff	
Recall	
Obedience	
Residential	
Semi-business	
City	
Malls	
Rural/Country	
Lifts	
Escalators	
Steps	
Car	
Bus	
Train	
Traffic	
Other	

Appendix C
Information and Consent Forms

The Focus Group

The Survey

Massey University
COLLEGE OF SCIENCES

INSTITUTE OF VETERINARY, ANIMAL AND BIOMEDICAL SCIENCES
Private Bag 11 222
Palmerston North
New Zealand
T 64 350 4525
F 64 6 350 5636
www.massey.ac.nz

Email: j.k.lloyd@massey.ac.nz

Current Date

The Focus Group
Information Document

Dear member of the Royal New Zealand Foundation for the Blind,

You are invited to take part in a focus group discussion to explore handler and guide dog relationships, which may result in the development of a programme to improve the match between a person and a guide dog. You can choose whether or not to take part, as is your right. If you choose to participate, would you please complete the enclosed consent form and return it to me at the above address in the reply-paid envelope provided. I will then contact you directly in due course.

I have arranged that this letter be sent to you through The Royal New Zealand Foundation for the Blind (RNZFB), as this organisation holds the client database.

About the researchers
My name is Janice Lloyd; I am a graduate student at Massey University, Palmerston North and will be the Principal Investigator for this study. The RNZFB's Guide Dog Services (GDS) have granted their approval for me to undertake this project as part of a PhD programme. My background encompasses many aspects of teaching and research in human and veterinary health and behaviour, and I have a particular interest in the human-companion animal bond. The research will be conducted from the Institute of Veterinary, Animal and Biomedical Sciences (IVABS) at Massey University where I can be reached during working hours. My contact details are given at the top of this page. Please feel free to get in touch with me if you have any queries or concerns about the study in general.

Three people will supervise the research. These are Dr. Kevin J. Stafford, Professor Steven J. La Grow and Dr. R. Claire Budge.

Kevin Stafford, Associate Professor, IVABS, Massey University, is a veterinarian and an animal behaviourist. He can be reached during working hours by telephoning (06) 356 9099, extension 7437.

Steven La Grow, Professor of Rehabilitation, School of Health Sciences, Massey University, teaches Orientation and Mobility to potential instructors. He can be reached during working hours by telephoning (06) 356 9099, extension 4155.

Claire Budge, Research Assistant, School of Health Sciences, Massey University, lectures in Psychology. Her research focuses on human and pet compatibility, and human health. She can be reached at Massey University during working hours by telephoning (06) 356 9099, extension 4132.

About the study
The PhD project will be conducted in two parts. The focus group, which you are being asked to take part in, is the first stage of the project. It is being conducted as a preliminary study to provide data to help design a questionnaire for the second stage, a survey of current and previous guide dog handlers from across New Zealand. The survey is expected to commence later this year.

Funding
Douglas Pharmaceuticals (sponsors of GDS' breeding programme) have awarded me a research scholarship. Funding to conduct the research has been received in part from Massey University with the remainder currently being sought.

Participation in the preliminary study
Invitations to participate in the focus group have been sent to several RNZFB members from around Palmerston North, from each of the following groups:

- Current guide dog handlers
- People awaiting their first guide dog
- People awaiting a replacement guide dog
- People who never have and do not intend to use a guide dog

The focus group will be held in the Veterinary Tower at Massey University, and will take around two hours to complete. Transport will be available to and from the venue and/or travel expenses incurred will be reimbursed. The discussion will be audiotaped and transcribed by me; the results of which, including direct quotations may be published in a scientific journal. The discussion is expected to include the following issues:

- Experiences with mobility aids
- Attitudes to and acceptance of loss of vision
- Preferences for particular dog types
- The matching process
- Training with a guide dog
- Advantages and problems associated with guide dog use
- Differences a guide dog may make to quality of life concerning: mobility, social function, companionship and health
- Relationship with the dog, including reasons some dogs are rejected
- Feelings at the end of the partnership
- Any topic you feel is relevant

Participation in this study is entirely voluntary; you may decline simply by disregarding this letter. By not taking part, you will in no way affect any future relationships you may have with RNZFB, GDS or Massey University. As a participant, you are free to withdraw from the discussion at any time without giving a reason, and you do not need to offer an opinion on every matter.

Treatment of information
I would request that the focus group participants not share what others in the group say with outside individuals. If this request is honoured then confidentiality and anonymity of participants is assured outside the group. The information will be available only to the researchers and for publications that may arise from it, and will not be passed onto other people. The transcripts and audiotapes will be stored at Massey University and will be destroyed after 10 years. No material that could personally identify you will be used in any reports on this study, unless you specifically request to be mentioned.

Further information
In summary, your rights as a participant are:

- To decline to participate
- To refuse to answer any particular questions
- To withdraw from the study at any time
- To ask any questions about the study at any time during participation
- To provide information on the understanding that your name will not be used unless you give permission to the researcher
- To be given access to a summary of the findings of the study when it is concluded

This study has received approval from the Massey University Human Ethics Committee and from the Manawatu-Whanganui Ethics Committee. If you have any queries or concerns about your rights as a participant in this study, you may wish to contact a Health and Disability Services Consumer Advocate by telephoning 0800 423 638. However, for general questions and information, please contact me via the details given at the top of this document.

Once the entire project is concluded, a summary of the findings will be sent to you if desired. To request a summary, please tick the box on the enclosed consent form.

I look forward to meeting you, and I hope you will enjoy contributing to the understanding of what makes a person and guide dog team work.

Kind regards,

Janice K. F. Lloyd
PhD student

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The Focus Group

Consent Form

- I have examined the information document provided and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.
- I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.
- I agree to provide information, and give consent for direct quotes to be used by the researchers, on the understanding that my name will not be used without my permission. *(The information will be used only for this research and publications arising from this research.)*
- I agree to participate in this study under the conditions set out in the information document.

Signed: .....

Name: .....

Date: .....

Address: .....

Phone/s: .....

Fax/s: .....

E - mail: .....

I request a summary of the results once the study is complete (please tick box). ☐

This project has been approved by the Manawatu/Whanganui ethics committee. This means that this committee may check that the study is running smoothly and that it has followed appropriate ethical procedures. Confidentiality of information given is assured.

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www.massey.ac.nz

Email: j.k.lloyd@massey.ac.nz

Current Date

The Guide Dog Handler Survey
Information Document

Dear client of Guide Dog Services,

You are invited to take part in a telephone survey designed to explore handler and guide dog relationships, which may result in the development of a programme to improve the match between a person and a guide dog. You can choose whether to take part, as is your right. If you choose to participate, would you please complete the enclosed consent form and return it to me at the above address in the reply-paid envelope provided. I will then contact you directly in due course.

I have arranged that this letter be sent to you through The Royal New Zealand Foundation for the Blind (RNZFB), as this organisation holds the client database.

About the researchers
My name is Janice Lloyd; I am a graduate student at Massey University, Palmerston North and will be the Principal Investigator for this study. The RNZFB's Guide Dog Services (GDS) have granted their approval for me to undertake this project as part of a PhD programme. My background encompasses many aspects of teaching and research in human and veterinary health and behaviour, and I have a particular interest in the human-companion animal bond. The research will be conducted from the Institute of Veterinary, Animal and Biomedical Sciences (IVABS) at Massey University where I can be reached during working hours. My contact details are given at the top of this page. Please feel free to get in touch with me if you have any queries or concerns about the study in general.

Three people will supervise the research. These are Dr. Kevin J. Stafford, Professor Steven J. La Grow and Dr. R. Claire Budge.

Kevin Stafford, Associate Professor, IVABS, Massey University, is a veterinarian and an animal behaviourist. He can be reached during working hours by telephoning (06) 356 9099, extension 7437.

Steven La Grow, Professor of Rehabilitation, School of Health Sciences, Massey University, teaches Orientation and Mobility to potential instructors. He can be reached during working hours by telephoning (06) 356 9099, extension 4155.

Claire Budge, Research Assistant, School of Health Sciences, Massey University, lectures in Psychology. Her research focuses on human and pet compatibility, and human health. She can be reached at Massey University during working hours by telephoning (06) 356 9099, extension 4132.

About the study
The PhD project is being conducted in two parts. The survey, which you are being asked to take part in, is the second stage of the project. The first stage (which some of you may have participated) was a focus group discussion that was conducted with some RNZFB members from the Manawatu-Whanganui region. The results of the focus group aided in the design for the questionnaire to be used in the survey.

Funding
Douglas Pharmaceuticals (sponsors of GDS' breeding programme) have awarded me a research scholarship, and funding to conduct the research has been received from IVABS and the Palmerston North Medical Research Foundation.

Participation in the study
The people being invited to participate in the survey include all previous and current guide dog handlers in New Zealand. Participants will be asked to reply to a telephone delivered questionnaire. The questionnaire will be administered by myself and will take about an hour and a half to complete, or, if preferred, it can be delivered in sections.

Issues that will be discussed during the interview will include:

- Demographics
- Visual status
- Expectations and the outcome of guide dog usage
- Factors affecting mobility
- Social function
- The dog as a companion and a mobility aid
- Type of dog received
- Advantages and problems associated with guide dog usage
- Reasons why handler and dog partnerships cease
- End of relationship issues
- Quality of life and health

You will also be invited to comment on any topic you feel is relevant.

Participation in this study is voluntary; you may decline simply by disregarding this letter. By not taking part, you will in no way affect any future relationships you may have with RNZFB, GDS or Massey University.

If you choose to participate, you are free to withdraw from the interview at any time without giving a reason, and you do not need to offer an opinion on every matter. Consent implies that I have your permission to request access to your records held by RNZFB's GDS. Records accessed may include application for training and assessment, medical reports and other correspondence.

Treatment of information
Confidentiality of participants is assured. The information will be available only to the researchers and for publications that may arise from it, and will not be passed onto other people. The questionnaires will be stored at Massey University and will be destroyed after 10 years. No material that could personally identify you will be used in any reports on this study, unless you specifically request to be mentioned.

Further information
In summary, your rights as a participant are:

- To decline to participate
- To refuse to answer any particular questions
- To withdraw from the study at any time
- To ask any questions about the study at any time during participation
- To provide information on the understanding that your name will not be used unless you give permission to the researcher
- To be given access to a summary of the findings of the study when it is concluded

This study has received approval from the Massey University Human Ethics Committee and from all regional Ethics Committees within New Zealand.

If you have any queries or concerns about your rights as a participant in this study, you may wish to speak with a Health and Disability Services Consumer Advocate within your region. The telephone numbers for each area are given at the bottom of this page. However, for general questions and information, please contact me via the details given at the top of this document.

Once the study is concluded, a summary of the findings will be sent to you if desired. To request a summary, please tick the box on the enclosed consent form.

I look forward to talking with you, and I hope you will enjoy contributing to the understanding of what makes a handler and guide dog team work.

Kind regards,

Janice K. F. Lloyd
PhD student

Advocacy services telephone numbers

Northland:	09 430 0166 or 0800 667 845
Auckland:	09 623 5799
Waikato:	07 834 3960
Bay of Plenty and Gisborne:	07 349 0182 or 0800 223 238
Hawkes Bay and Chatham Islands:	06 877 2010
Manawatu and Whanganui:	06 348 0074 or 0800 423 638
Wellington:	04 570 0850
Porirua:	04 237 0418
Nelson and Marlborough:	03 547 8415
Canterbury and West Coast:	03 377 7501 or 0800 377 766
Otago and Southland:	03 479 0265 or 0800 500 265

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Guide Dog Handler Survey

Consent Form

- I have examined the information document provided and have had the details of the study explained to me. My questions have been answered to my satisfaction and I understand that I may ask further questions at any time.

- I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

- I agree to provide information, and give consent for direct quotes to be used by the researchers, on the understanding that my name will not be used without my permission. *(The information will be used only for this research and publications arising from this research.)*

- I agree / do not agree **(please choose)** to have my records accessed at Guide Dog Services.

- I agree / do not agree **(please choose)** to Guide Dog Services being informed of my participation. *(Please be assured that any information you provide will remain confidential.)*

- I agree to participate in this study under the conditions set out in the information document.

Signed: .....

Name: .....

Date: .....

Address: .....

Phone/s: .....

Fax/s: .....

E - mail: .....

I request a summary of the results once the study is complete (please tick box). ☐

This project has been approved by all regional ethics committees. This means that your regional committee may check that the study is running smoothly and that it has followed appropriate ethical procedures. Confidentiality of information given is assured.

Appendix D
Selected Conference Research Papers from this Study

A Focus Group Exploration of Guide Dog and User Partnerships

Janice K. F. Lloyd [1], R. Claire Budge [2], Steven J. La Grow [3] & Kevin J. Stafford [1]

[1]Institute of Veterinary, Animal & Biomedical Sciences, and Schools of [2]Psychology and [3] Health Sciences, Massey University, Private Bag 11222, Palmerston North, New Zealand.
E-mail: j.k.lloyd@massey.ac.nz

1. INTRODUCTION

A focus group is a group discussion that focuses on a specific topic of interest to the researcher. Its purpose is to provide insight into attitudes that underlie behaviour by collecting a range of information on personal experiences and beliefs. The aim of this study was to explore issues pertaining to guide dog use within New Zealand, as a preliminary measure to assessing the match between a person and his/her guide dog. This paper presents the findings of a focus group regarding some of the issues considered important for achieving and maintaining a successful match.

The matching process is very complex, and is discussed elsewhere in these proceedings. A well-matched dog will impart benefits such as improved mobility, health and social life to its user (or handler). However, people return guide dogs for many reasons that affect the users' quality of life. Hence, a qualitative approach was adopted by way of a focus group, as this area is relatively unresearched and the researchers wished to investigate the issues raised by participants themselves.

2. METHOD

2.1 Subjects

Seven people participated in this study; 3 current guide dog users, a previous user awaiting a replacement dog, 2 vision impaired people who have chosen not to use a guide dog, and the normal-sighted partner of a current user. The sample included both sexes, ranging in age from 26 to 56 years. They had an assortment of experience with guide dogs, and visual status was varied in onset and severity. Also present were the first author, acting as moderator and facilitator, and the second author in the role of co-facilitator and note taker of non-verbal behaviour and other dynamics not recordable on audiotape.

2.2 Procedure

A list of questions was used to help focus the discussion and probe unclear comments or issues. Participants were encouraged to discuss a range of topics covering the relationships people had with guide dogs. They were also reassured that any area was worthy of discussion and that the goal of the study was not consensus. In order to initiate discussion, all were asked to respond to the question "What are your experiences with guide dogs and other mobility aids?" This had the advantage of bringing everyone into the conversation on an equal value. The discussion was allowed to continue until all participants had raised the issues they wished to, a process that took around an hour and a half. The discussion was audiotaped, and transcribed for analysis while impressions were fresh.

3. RESULTS

The moderator transcribed the tape, as per Hawe, Degeling and Hall's (1990) suggestion that qualitative data be verifiably analysed via a 4-step, systematic procedure. Therefore, the data was organised in a workable order, shaped into categories of patterns and themes, summarised and explained.

The themes emerging from the discussion were categorised under the following broad headings:

- The decision to use or not to use a guide dog
- Advantages and disadvantages of guide dogs
- The matching process

The decision to use or not to use a guide dog

As there were guide dog users and non-users participating, the issue of why some people did not choose to use a dog was raised. In response, one non-user felt that he travelled quickly with his long cane and despite running into objects thought that a dog would slow him down. He also believed that independent travel was a matter of confidence. The other non-user stated that although he was "blind enough" to qualify for a dog, he did not need one as he could see relatively well. Although, if his vision worsened he would want one, but mainly for companionship.

In this group, people who chose to use dogs initially did so primarily to improve their mobility and become more independent. When asked to comment on whether guide dogs might help people adjust to their vision loss, the response was that it depended on individual circumstances and that guide dogs were beneficial only if the users had functional deficits; otherwise, the dogs were just pets. The issue of why only around 300 of New Zealand's vision impaired population of 12000 chose to use a dog, when 4000 people were eligible was discussed. It was speculated that this was due to only a small number of the people being "truly blind" and because most were elderly.

Advantages and disadvantages of guide dogs

Advantages of guide dog use raised included, increased confidence, feelings of loneliness abating, and that getting around was less stressful, less tiring and more efficient. One user commented to another "You were good at mobility, so you only wanted a dog like mine... Once you got your dog you realised that you were not so good at mobility after all!" Travelling with a dog enabled more "normal" conversation than when being sight-guided, as the user was able to turn his/her head towards a companion.

Disadvantages raised included poor social behaviour e.g. scavenging, having to consider the dog's welfare and wishing that "... sometimes I could hang up my dog like a long cane". There was dissent on how much social contact the dog could comfortably attract from the public e.g. small children exciting the dog verses welcome attention. All agreed that interference while working in harness was objectionable. Participants' family and friends had mixed reactions towards guide dog use, from positive and supporting, to feeling rejected and undervalued. Participants also expressed feelings of resentment if the dog seemed attached to others. Those who had used dogs nearing retirement age found the age-related reduction in mobility very frustrating. However, all

the people who had used guide dogs indicated they would continue to do so. "I would not be where I am today if I did not have the dog. It changed my life completely; made me move on and gave me the confidence and independence to do it".

The matching process

Some people were satisfied with the input they had into their match, while others requested more consideration for lifestyle changes, family dynamics and other pets. It was suggested that people should not set their hearts on a particular breed to avoid disappointment and increasing the waiting time, but that their preferences should be taken seriously. Some felt that being trained to use the guide dog was very stressful, exacerbated if orientation and mobility skills were limited and by lack of empathy from the instructors. Conversely, one user stated "I was taken from someone with no dog skills to a competent handler of a difficult dog in just three weeks. An amazing transformation". It was noted that good relationships with dogs might take six months or more to achieve, but that perseverance usually paid off. However, dogs could be rejected for many reasons, with social behaviour deemed as important as compatibility of attributes such as the dog's walking speed.

3. CONCLUSION

The results of this preliminary study generated ideas and aided in the development of a multi-faceted questionnaire to assess the matching process, and to explore the development and the consequences of this partnership. This survey is currently being conducted with new, current and previous guide dog users.

ACKNOWLEDGEMENTS

This work would not be able to proceed without the full support of the Royal New Zealand Foundation for the Blind's Guide Dog Service's manager, Ian Cox, and all his staff. The first author is also very grateful to Douglas Pharmaceuticals, sponsors of Guide Dog Service's breeding program for a 3-year scholarship, and to the Palmerston North Medical Research Foundation for their assistance towards research costs.

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Measures of Mobility - With & Without a Guide Dog

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1. INTRODUCTION

Several studies have shown that a guide dog is considered to be an effective and valuable aid to mobility (Bauman, 1954; Corbett & Keld, 1957; Finestone et al., 1960; Gray & Todd, 1968, cited in Delafield, 1974). However, little evidence could be found to determine what caused guide dog users (or handlers) to be more mobile than non-users. Consequently, as part of a doctoral research project exploring the match between a person and his or her guide dog (Lloyd et al., 2000a, 2000b), a pilot study was conducted to empirically determine the effects of a guide dog on the guide dog user's self-perceived, travel skills. This paper will describe the pilot study, and demonstrate the efficacy of the guide dog as a mobility tool.

2. MATERIALS AND METHODS

2.1 Participants

Fifteen current and previous guide dog users, 6 male and 9 female, who have used a total of 28 guide dogs, participated in the pilot study. Their experience with guide dogs varied from one to four dogs, and from 18 months to 20 years of guide dog use. The participants' age ranged from 21 to 74 years, with a mean of 44.4. The onset of vision loss ranged from birth to 28 years, with approximately 27% congenital in origin, and 73% adventitious. Thirteen percent of the participants with adventitious onset lost their vision traumatically, as opposed to gradual or progressive loss. Visual function varied, with 54% of the participants having total vision loss. Of the remaining 46% with partial vision, 20% had a peripheral field loss, 13% a central field loss and 13% had no specific field loss. Visual acuity was not recorded.

2.2 Procedure

As no suitable measure existed in the literature, a 10-item questionnaire was created to rate the participants' self-perceived, 'overall travel skills' (OTS) with and without a guide dog, including how *difficult* and how *limited*[1] their travel was at these times. The single-delivery questionnaire was administered by either telephone (n = 7) or personal (n = 8) interview. It measured the following five items on a 10-point scale, with one being low and 10 being high:

[1] The terms 'difficulty' and 'limitation' were adapted from a Difficulty and Limitation Scale (Blasch, De l' Aune & La Grow, 1995) that investigates the effects of orientation and mobility training (O&M) on specific travel skills thought to be positively affected by O&M training (La Grow & Craig, 2000).

1. Orientation skills - with and without a guide dog
2. Mobility skills - with and without a guide dog
3. Orientation & Mobility skills - with and without a guide dog
4. Travel Difficulties - with and without a guide dog
5. Travel Limitations - with and without a guide dog.

Participants, who had used more than one dog, were asked to answer in terms of their overall experience with guide dogs.

3. ANALYSIS and RESULTS

The research question was:

- *Is there a significant difference between the participants' evaluation of their travel skills with and without a guide dog?*

In order to answer this question, a paired-samples t-test was conducted to evaluate whether there was a statistically significant difference in the mean summary scores for the OTS with and without a guide dog.

The summary score between the paired-samples was shown to be significantly higher (improved) when a guide dog was used ($t = 6.89$, $p < .001$), and unlikely to be due to chance. Hence, a paired-samples t-test was run on each of the five travel skills, with and without a dog, to evaluate any specific changes the dog may make. The difference in ratings was found to be significantly improved for all skills with the dog compared to without. The mean scores (M) and t values are presented in Table 1.

Table 1:
Paired-samples mean scores and t values for individual travel skills with and without a guide dog.

Travel Skills	Without Dog *M*	With Dog *M*	Difference in Means *t*
Orientation	6.07	8.87	4.47 **
Mobility	4.67	9.00	6.93***
Orientation & Mobility	5.07	9.00	6.19***
Travel Difficulties	7.73	2.07	8.08***
Travel Limitations	7.20	2.87	4.32 **

Significance (2-tailed): * $p < .05$ ** $p < .01$ *** $p < .001$

Pearson correlations (r) were run to explore any associations between the OTS results with and without a dog, and the variables: age, onset and severity of visual status, time spent working with a guide dog, and how much O&M training was received prior to acquiring a guide dog. No significant correlations were found, but the magnitude of some of the Pearson's r values suggests this may have been due to the small sample size.

The Cronbach alpha coefficients for the OTS scales, with and without a dog, were .71 and .94 respectively, indicating that both scales showed good internal consistency and appear to be reliably constructed from appropriately linked items.

4. CONCLUSION

The results of this study show that the participants have a more positive perception of their travel skills when using a guide dog, supporting the hypothesis that the guide dog is an efficacious mobility tool.

These results, along with the results from interviews with up to 100 other guide dog users in New Zealand, will be used to assess the match and improve the outcome of the guide dog and user partnership.

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Matching Guide Dogs: Mobility and Compatibility Outcomes

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ABSTRACT

As part of a doctoral project, this study examined the outcome of the relationship of 50 people and their first guide dogs on non-mobility as well as mobility issues. Overall compatibility was measured, and factors that influenced the success or failure of the match between the person and his or her dog were identified.

I. INTRODUCTION

Guide dogs, like other primary mobility aids such as long canes or sighted-guides, are intended to enhance the lifestyle of people who are blind or sight-impaired by facilitating independent mobility (Delafield, 1974). Other benefits of being a guide dog handler (user) include the provision of friendship, companionship and improved social-function (Steffens & Bergler, 1998; Muldoon, 2000).

The process of producing guide dogs involves the selection and breeding of suitable dogs, raising and socialisation of the pups, and their subsequent training as mobility aids (Whitstock, Franck & Haneline, 1997). The making of a successful handler-dog *team* involves the matching of a trained dog to its handler, the training of the handler and dog as a team, and ongoing follow-up. In New Zealand, the Royal New Zealand Foundation for the Blind (RNZFB) Guide Dog Services (GDS) is the organization responsible for the production of guide dogs and the matching, training and the outcome of the team.

Matching a person who is blind or sight-impaired with a guide dog is a process of finding the most suitable guide dog available for that individual, and a successful match is one that stands the test of time. Ongoing satisfaction with the partnership depends upon the degree of compatibility between the person and the dog, and how this suits the handler's environment (Farrugia, Gillard & Tomlinson, 1998). Compatibility can be defined as the behavioural, physical and psychological fit (Budge, Jones & Spicer, 1997) between the handler and his or her guide dog.

Although the dog is principally a mobility tool, success is not solely dependent on the dog's ability to lead an individual safely and efficiently through the environment. Characteristics concerning compatibility of both the person and the dog, and how these relate to social situations as well as orientation and mobility, should be considered when making a match (personal communications with Ian Cox, General Manager of the RNZFB's GDS, 1998; Lloyd et al., 2000a, 2000b).

2. THE PROBLEM

Not all guide dog partnerships are successful, and the consequences of an unsuccessful partnership may be severe in terms of the reduction in mobility and quality of life for the handler (Lloyd, 2002), and time and resources for guide dog schools. Guide dog schools worldwide pay a great deal of attention to the process of matching a dog to its user, but little data exists in the literature on this process, nor on the outcome of the partnership.

Matching is an art as much as a science, and as such, there may be no such thing as a perfect match. However, there are several key factors to be considered when making a match that influence the success or failure of the process.

3. AIMS

The overall purpose of the doctoral study was to explore handler-dog relationships to improve the outcome of the matching process in New Zealand and possibly in guide dog schools worldwide. The specific aims for this conference paper were to determine empirically how compatible people and their *first* guide dogs were on mobility as well as non-mobility issues, and to identify the main reasons why some of these first dogs were rejected due to being deemed incompatible by the handler.

4. METHODS

4.1 The Participants

All current and previous clients of the RNZFB GDS (N = 240) were invited to participate in this study. In order to preserve client confidentiality, contact was initially made by a GDS staff member who mailed the 'Invitation to Participate' packages. These packages consisted of an information sheet supplied in the client's preferred format of Braille, audiotape or large print, plus a consent form and a pre-paid, addressed envelope. Participation was implied on the return of the signed consent form to the researcher (first author), enabling direct contact between the researcher and the participants, which preserved the clients' anonymity.

Ethical approval for the study was obtained from Massey University and from all regional National Health Funding Authorities Human Ethics Committees throughout New Zealand.

Fifty people were randomly selected to participate from those who responded. Participants were interviewed either personally (22%) or by telephone (78%) regarding the relationship they currently have or had with their first guide dog.

4.2 The Measures

Participants were asked if their partnership with their first dog had ceased, and if so, to state the main reason why. Demographic information and visual status of the participants were recorded, and in order to gauge functional vision, participants were asked to state if they felt they had *no*, *some* or *a lot* of useful, residual vision.

As no suitable measure existed in the literature, an instrument, The Guide Dog Compatibility Index (GDCI) was developed by the researcher to assess how compatible the handlers perceived the dogs to be with themselves. This model was comprised of a

10-item questionnaire that measured the following variables on a continuous scale from one to 10, with a higher score indicating a greater degree of compatibility:

1.	Need	(for a dog)	
2.	Motivation	(to get a dog)	
3.	Control	(of dog)	
4.	Attachment	(emotional attachment to dog)	
5.	Like-minded	(at one with dog)	} **Compatibility**
6.	Mobility	(working relationship)	
7.	Social	(dog's effect on social-function)	
8.	Companionship	(dog's qualities as a companion)	
9.	Satisfaction	(overall satisfaction with dog)	
10.	Match	(overall matching success)	

The scores on the individual items were combined to calculate a total compatibility score (TCS), which was tested to ensure item reliability. The Cronbach alpha coefficient for the TCS was .79, indicating that the scale had good internal consistency and appeared to be constructed from items measuring the same underlying variable.

5. ANALYSES AND RESULTS

5.1 Sample Description

Forty eight percent of the participants were male, and age ranged from 17 to 73 years at the time they used their first dog, with a mean of 37.6. Twenty eight percent of the sample were currently using their first dog, while the remainder were using their second to eighth dog, or were not using a guide dog at that time. First dogs were used over a period of 1 to 138 months, with an average working life of 70.3 months. The period of time people worked with their first dogs that were rejected due to being unsuitably matched ranged from 1 to 72 months, with a mean of just under 2 years (23 months).

Twenty two percent of participants had congenital onset of vision loss, and 1/3 of those with adventitious onset lost their vision traumatically, as opposed to gradually. Visual function varied, with 66% having total vision loss (including those with light perception and projection), 16% with a peripheral field loss, 16% a central field loss and 2% described a non-specific field loss. Sixty percent of people stated that they had no useful vision, 30% had some, and 10% professed to have a lot.

5.2 The Research Questions

In order to explore relationships within the *first dog* dataset the following research questions were asked:

1. How many dogs were rejected, and why?
2. Is there a relationship between the sex of the participants and whether or not dogs were rejected?
3. Is there a relationship between the age of the participants and whether or not dogs were rejected?
4. Is compatibility associated with whether or not dogs were rejected?
5. Is the degree of self-professed useful vision associated with compatibility?
6. Is there an interaction between the age and sex of the participants and their association with compatibility?
7. How well do individual items of the GDCI predict overall matching success, and how much variance in overall matching success can be explained by these items?
8. Which item/s from the index is the best predictor of overall matching success?
9. If age and sex of the participants and the amount of self-professed useful vision are controlled for, is the GDCI model still able to predict a significant amount of the variance for overall matching success?

The results were analysed via a computerised, statistical software package (SPSS 11.0) using parametric and non-parametric techniques.

Question 1:
How many dogs were rejected and why?

Sixteen percent of dogs in the sample were rejected. Figure 1 illustrates the fate of dogs in the sample, by percent outcome. Rejected dogs are shown in black bars.

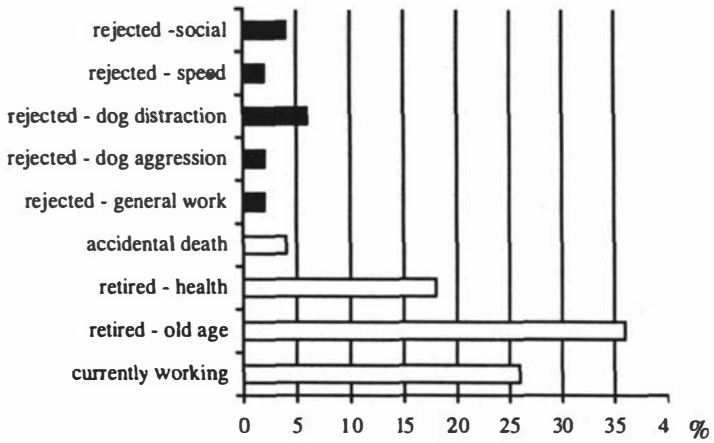

FIGURE 1. FATE OF ALL FIRST GUIDE DOGS, BY PERCENT OUTCOME.

Question 2:
Is there a relationship between the sex of the participants and whether or not dogs were rejected?

A chi-square test for independence was conducted to assess if either sex were more likely to reject dogs. Results show that the proportion of males that reject dogs is not significantly different from the proportion of females.

Question 3:
Is there a relationship between the age of the participants and whether or not dogs were rejected?

A Pearson (r) correlation was conducted to explore the strength of the relationship. Results show a small degree of correlation (r = .19), indicating that age does not significantly influence whether or not dogs were rejected.

Question 4:
Is compatibility associated with whether or not dogs were rejected?

A Pearson (r) correlation was conducted to explore the strength of the relationship between the level of compatibility, as measured by the TCS, and how many dogs were rejected. The result, which is statistically significant, shows a moderate degree of correlation (r = .41, p = .003), indicating that higher levels of compatibility correspond with a decreasing likelihood of dogs being rejected.

Question 5:
Is the degree of self-professed useful vision associated with compatibility?

This analysis looked for differences in compatibility ratings for subjects with 'no', 'some' and 'a lot' of useful vision. To explore the influence of multiple variables, several different comparisons were examined simultaneously. However, this approach, while being more precise, increases the risk of accepting significant results that may have happened by chance (Type 1 error). To protect against this possibility 'post-hoc' comparisons were used in the analysis. This two-step procedure involved looking for significant differences (F-ratio) among the groups in the study design, followed by an additional test, where appropriate, to identify where these differences occurred. For example, does Group 1 differ from Group 2 or Group 3, or do Group 2 and Group 3 differ?

A one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of the amount of self-professed, useful vision on the level of compatibility. Subjects were divided into 3 groups according to the amount of useful vision they felt they had (Group 1: none; Group 2: a little; Group 3: a lot). After checking that the variance in scores was the same for each of the three groups (Levene's test), a statistically significant difference was found in the TCS scores for the three groups [$F(2, 47) = 3.4$, $p = .04$]. The difference in mean scores between the groups is shown in Figure 2. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 2 ($M = 90.4$, $SD = 6.79$) was significantly different at $*p = .053$ from Group 3 ($M = 77.6$, $SD = 14.69$). Group 1 ($M = 84.23$, $SD = 11.05$) did not differ significantly from either Group 2 or 3. The effect size (eta squared) was .13, indicating a considerable amount of association between compatibility and the amount of useful vision. The major difference was between the groups with a little (Group 2) and a lot (Group 3) of useful vision, with Group 2 reporting the highest levels of compatibility.

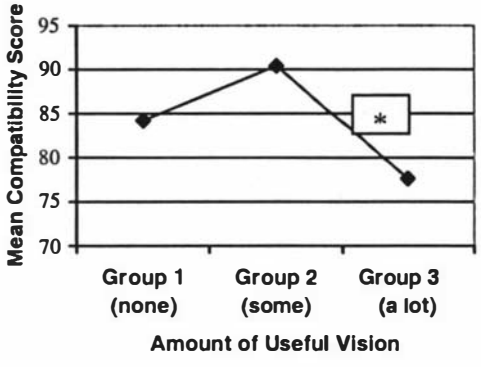

FIGURE 2. DIFFERENCE IN MEAN COMPATIBILITY SCORES FOR AMOUNT OF USEFUL VISION

Question 6:
Is there an interaction between the age and sex of the participants and their association with compatibility?

A two-way between-groups ANOVA was conducted to explore the effects of age and sex of the participants on levels of compatibility. The advantage of this technique being that the 'main effects' for age and sex on compatibility can be examined independently, while exploring the possibility of an 'interaction effect', where the effect of age on the

level of compatibility depends on sex, and vice-versa. Subjects were divided into three groups according to their age (Group 1: 17-24 years; Group 2: 25-44; Group 3: 45 and above). Results show no statistically significant main or interaction effects, as age and sex were not associated with compatibility, and there were no combined effects between age and sex.

Question 7:
How well do individual items of the GDCI predict overall matching success, and how much variance in overall matching success can be explained by these items?

In order to explore the inter-relationship between overall matching success (item 10), and each of the other items (predictors) that make up the GDCI scale, a multiple regression technique was used. Multiple regression tells how well a set of variables is able to predict a particular outcome by providing information about the model as a whole and the relative contribution of each of the variables that make up the model. It also allows testing of how much an additional variable (e.g., useful vision) contributes to the predictive ability of the model.

Issues of singularity were not an issue for this analysis, as no individual item was made up from a combination of other items in the scale. However, as suggested by Tabachnick and Fidell (1996), items: 1 (Need), 2 (Motivation), 4 (Attachment) and 8 (Companionship) were removed from the analysis, as they did not correlate (Pearson r) significantly with overall matching success. Item 9 (Satisfaction) was also removed to avoid the effects of multicollinearity, as it correlated too highly with one of the other items, and may have masked the effects of the remaining predictors. Therefore, the items in the adjusted model were items: 3 (Control), 5 (Like-minded), 6 (Mobility) and 7 (Social).

Multiple regression is very sensitive to outliers (very high or very low scores) and other violations. Therefore, breaches of various assumptions (outliers, normality, linearity, homoscedasticity and independence of residuals) were checked for. A normal probability plot suggested no major deviations from normality, and the standardised residuals in a scatterplot did not suggest any violation of assumptions, as they fell within the accepted range.

The results of a standardised multiple regression show that 68.4% (*R* Square value) of the variance in the amount of overall matching success is explained by the adjusted GDCI model ($p < .0005$). This is a respectable outcome.

Question 8:
Which item/s from the index is the best predictor of overall matching success?

Table 1 shows the contribution each variable makes to the equation, in order of predictive ability. Each of the beta values represents the unique contribution of each variable when the overlapping effects of all other variables in the equation are removed. Results show that all four items make a statistically significant contribution, and appear to be reliable predictors of the outcome.

TABLE 1. RELATIVE CONTRIBUTION OF INDIVIDUAL VARIABLES TO THE EQUATION IN ORDER OF PREDICTIVE ABILITY

Variables most to least prediction	**Beta Coefficients** standardised	**Significance** $p =$
Mobility	.34	.009
Control	.32	.011
Like-minded	.24	.023
Social	.19	.037

Question 9:
If age and sex of the participants and the amount of self-professed useful vision are controlled for, is the adjusted GDCI model still able to predict a significant amount of the variance for overall matching success?

A hierarchical multiple regression analysis was conducted to see if age, sex and the amount of self-professed useful vision (Model 2) contributed significantly to the predictive ability of the adjusted GDCI model (Model 1). Results show that Model 2 explains 8.2% of the variance in overall matching success, which is not statistically significant. Combining both Models 1 and 2 (Model 3) explains 72.6% variance ($p <$ .0005), which means that Model 1 predicts 64.4% (R Square change) of the variance in overall matching success ($p <$ .0005), when the effects of age, sex and the amount of useful vision are statistically controlled for. ANOVA results indicate that Model 3 was significant at [F (7, 42) = 15.90, $p <$ .0005].

6. CONCLUSIONS

The results of this study show that the majority of handler and first guide dog relationships were successful. Dogs mainly ceased working due, in order of magnitude, to: retiring of old age, ill health and being unsuitably matched. Dogs were rejected mostly for distraction/aggression to other dogs while working, followed by deficiencies with specific guiding tasks and social behaviours equally.

This research is a work-in-progress. The findings presented in this paper show interesting relationships that appear to be present in the data. However, this study was based on a small sample of dogs, which can affect the results of sophisticated statistical techniques like multivariate analysis. Hence more significant results may be shown with future analyses inclusive of the total number of dogs in the entire sample (N = 118).

Despite the small sample, four items: the dog's effects on mobility, the person's ability to control the dog, like-mindedness between the person and the dog, and the dog's effects on social-interactions appeared to be good predictors of matching success. Issues such as: being emotionally attached to one's dog, companionship, need for a dog and motivation to get one did not make a significant impact in this study. These results may be of practical use to the Guide Dog Orientation and Mobility Instructor to identify important aspects of the matching process, and/or be used as a screening device to identify areas where a matching problem exists.

The research questions examined in this study, regarding the use of the first dog, have initiated the gathering of information that will be used to further explore the handler-dog partnership. Questions and resulting hypotheses will be developed and established in later work as pertinent factors are identified.

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Appendix E
Table 9.8. Factor Associations with Matching Success

Table 9.8. Factor associations with matching success: Observed frequencies and chi-square (χ^2) values or Fisher's Exact Probability Test of cross-tabulated categorical data, and Pearson product-moment correlations (r) on continuous data, with whether dogs were considered mismatched (m/m) or successfully matched (not m/m). (N = 118 unless otherwise specified)

Variables	Category	Observed Frequencies		χ^2	Continuous Scale	r
		m/m	not m/m		Range	
Demographic						
Sex of handler	Male	15	41	1.00	N/a	N/a
	Female	16	46			
Ethnicity	NZ European	22	57	.74	N/a	N/a
	Other	9	30			
Age received dog - years	17-33	10	31	.74	17-73	-.04
	34-46	9	29			
	47-73	12	27			
Handler status	User	30	77	FEPT	N/a	N/a
	Owner	1	10			
Multiple dog handler (i.e. used more than one dog)	Yes	29	73	FEPT	N/a	N/a
	No	2	14			
Country dog received and matched	New Zealand	30	79	FEPT	N/a	N/a
	Other	1	8			
Breed of dog	Conventional (inc. LR, GR, GSD and 1st x LR/GR)	25	74	FEPT	N/a	N/a
	All others (including exotics and other crosses)	6	13			
Sex of dog	Bitch	17	57	.71	N/a	N/a
	Male dog	14	30			
Colour of dog - Labrador retrievers (LR) only (n = 68)	Yellow	8	22	.03	N/a	N/a
	Other (black or chocolate)	12	26			
Moved house 2 years before or after obtaining dog	Yes	10	24	.07	N/a	N/a
	No	21	63			
Was dog obtained prior to 1988 (n = 109)	Yes	5	14	FEPT	N/a	N/a
pertains to dogs matched in New Zealand only	No	25	65			

Variables	Category	Observed Frequencies		χ^2	Continuous Scale Range	r
		m/m	not m/m			
Demographic cont.						
Marital status when dog was acquired	Married or with partner	17	51	.02	N/a	N/a
	Otherwise	14	36			
Education	Up to secondary level	17	48	.000	N/a	N/a
	Tertiary	14	39			
Employed	Yes (full or part-time)	26	68	.18	N/a	N/a
	No	5	19			
Ownership of home	Yes	21	63	.07	N/a	N/a
	No	10	24			
Adults in household (including handler)	Handler only	10	29	0	N/a	N/a
	Other	21	58			
Children in household (< 18 years)	Yes	23	57	.44	N/a	N/a
	No	8	30			
Pets in household	Yes	17	53	.14	N/a	N/a
	No	14	34			
Vision						
Age vision lost - years	0-20	20	60	1.62	0-58	-.07
	21-35	10	20			
	35-58	1	7			
How long vision lost prior to receiving a dog- years	1-3	1	4	FEPT	1-73	.02
	Over 3	30	83			
Cause of vision loss	Progressive retinal disorders	13	37	4.28*	N/a	N/a
	Congenital anomalies	3	22			
	Other - trauma/tumour	15	28			
Onset of vision loss	Congenital (occurring at birth)	5	22	2.61	N/a	N/a
	Acquired later in life (adventitious) - gradual	12	39			
	Acquired later in life (adventitious) - sudden	14	26			

Variables	Category	Observed Frequencies		χ^2	Continuous Scale Range	*r*
		m/m	not m/m			
Vision cont.						
Type of vision loss	Total (including light perception and projection)	25	62	.61	N/a	N/a
	Partial	6	25			
Amount of useful vision (for mobility)	None	25	58	6.12** !	N/a	N/a
Note: No significant finding was seen when 'a little' and 'a lot' of	A little	3	26			
useful vision were combined to form the category 'some'.	A lot	3	3			
Deterioration of useful vision	Yes	2	23	4.34**	N/a	N/a
	No or N/a	29	64			
Application for a dog						
Whose to idea to apply - first dog only (n = 50)	Handler	0	10	FEPT	N/a	N/a
	Other	10	30			
Apply to please whom - first dog only (n = 50)	Self	9	40	FEPT	N/a	N/a
	Other only	1	0			
Time spent on waiting list for dog - months (*n* = 111) -	N/a	-	-	N/a	0-72	.08
All dogs excluding cases where dog was trained by owner						
Pet owning history						
Previous responsibility for pets	Yes	20	68	1.58*	N/a	N/a
	No	11	19			
Affinity with animals	Yes	21	68	.84	N/a	N/a
	No	10	19			
Age received first pet	6 years and under	19	56	.10	0-38	.06
	Over 6 years	9	23			
	Never owned a pet	3	8			
Most important pet in childhood	Dog	10	33	.54	N/a	N/a
	Other	17	41			
	Never owned a pet in childhood	4	13			

Variables	Category	Observed Frequencies		χ^2	Continuous Scale Range	*r*
		m/m	not m/m			
Expectations						
Expectations re. mobility	Not or somewhat met	26	4	71.63***	N/a	N/a
	Met or exceeded	5	83			
Expectations re. social function	Not or somewhat met	13	5	FEPT***	N/a	N/a
	Met or exceeded	18	82			
Expectations re. companionship	Not or somewhat met	11	4	FEPT***	N/a	N/a
	Met or exceeded	20	83			
Expectations re. other	Not or somewhat met	6	1	FEPT***	N/a	N/a
	Met or exceeded	25	86			
Expectations re. behaviour	Not or somewhat met	28	13	54.00***	N/a	N/a
	Met or exceeded	3	74			
Expectations re. physical (inc. health)	Not or somewhat met	16	20	7.54***	N/a	N/a
	Met or exceeded	15	67			
Category of most importance regarding expectations of guide dog usage	Mobility	26	66	5.37*!	N/a	N/a
	Companionship	4	5			
	Combination - mobility/companionship/social	1	16			
Category o f most importance regarding dog behaviour and physical expectations	Behaviour	31	82	1.86 !	N/a	N/a
	Physical (inc. health)	0	3			
	Combination - behaviour/physical	0	2			
Handler and dog team training						
Relationship with instructor (*n*=114) - excluding owners of unqualified dogs	N/a	-	-	N/a	1-10 (good)	.25***
Choice of training venue	Yes	11	24	.23	N/a	N/a
	No	19	57			
Training venue	Domiciliary (home) only	19	31	4.59**	N/a	N/a
	Other - residential/centre-based/combination	11	50			
Satisfaction with training (*n* = 111) - excludes cases where dog was trained by owner	N/a	-	-	N/a	1-10 (good)	.31***

Variables	Category	Observed Frequencies		χ^2	Continuous Scale Range	*r*
		m/m	not m/m			
Workload						
Main working environment	Busy city	4	27	3.00*	N/a	N/a
	Elsewhere	27	60			
Amount of work required	Low	6	8	3.11*	N/a	N/a
	Medium	16	42			
	High	9	37			
Dog's ability to cope with the intensity of the workload -	Yes	9	81	48.36***	N/a	N/a
(environment and amount)	No	22	6			
Compatibility						
Need for a dog	N/a	-	-	N/a	1-10 (high)	.05
Motivation to acquire a dog	N/a	-	-	N/a	1-10 (high)	-.04
Motivation to ensure success with the match	N/a	-	-	N/a	1-10 (high)	.36***
Ability to control dog	N/a	-	-	N/a	1-10 (high)	.65***
Emotional bond between handler and dog - 2-way relationship	Yes	19	86	FEPT***	1-10 (strong)	.61***
	No	12	1			
Emotional attachment of handler to dog - 1-way relationship	N/a	-	-	N/a	1-10 (high)	.54***
Travel - working relationship -	Good	13	85	46.61***	1-10 (good)	.71***
dog's work and its effects on handler's mobility	Not good	18	2			
Satisfaction with dog's social behaviour	N/a	-	-	N/a	1-10 (high)	.55***
Satisfaction with dog as companion	N/a	-	-	N/a	1-10 (high)	.54***
General suitability between handler and dog	N/a	-	-	N/a	1-10 (high)	.73***
Overall satisfaction	N/a	-	-	N/a	1-10 (high)	.80***
Overall success of the match	N/a	-	-	N/a	1-10 (high)	.85***
Resolution of Problems						
Resolution of behavioural problems (n = 101)	Yes or improved	1	39	22.60***	N/a	N/a
	No	30	31			
Resolution of physical problems (n =50)	Yes or improved	3	22	8.91***	N/a	N/a
	No	14	11			

Variables	Category	Observed Frequencies		χ^2	Continuous Scale Range	*r*
		m/m	not m/m			
End of the Partnership						
Reasons partnerships ended, or were about to end (*n* = 89)	Dog related	30	56	FEPT	N/a	N/a
	Handler related	0	3			
	Work related	18	6	22.61***	N/a	N/a
	Non-work related	12	53			
	Behaviour related (inc. psychological)	25	10	34.00***	N/a	N/a
	Physical related	5	49			
Was the dog returned before retirement (< 8 years)	Yes	23	20	23.71***	N/a	N/a
	No	8	67			
	Otherwise	29	33			
Kept in touch with dog if possible (*n* = 116)	Yes	12	77	31.39***	N/a	N/a
	No	19	8			
Put off applying for replacement dog (*n* = 116)	Up to 6 months	23	80	FEPT***		
	Longer or indefinite	8	5			
End of partnerships effects on next dog (*n* = 116)	Neutral	10	52	8.92***	N/a	N/a
	Positive	15	19			
	Negative	6	14			
Miscellaneous						
Unexpected benefits from using dog	Yes	11	69	18.15***	N/a	N/a
	No	20	18			
Categories of unexpected benefits (*n* = 81)	Mobility related	2	20	FEPT	N/a	N/a
	Otherwise (see Table 7.9 for relevant items)	9	50			
Friends' and families feelings re. dog	Positive and supporting	21	82	FEPT***	N/a	N/a
	Otherwise (see Table 7.10 for relevant items)	10	5			
Any non-visual conditions restricting mobility	Yes	10	27	.00	N/a	N/a
	No	21	60			

***$p < .01$ **$p < .05$ *$p < .25$ (screening value)

Yates' Correction for Continuity χ^2 value for 2 by 2 tables was reported where the lowest expected frequency in any cell was > 10.

FEPT (Fisher's Exact Probability Test) for 2 by 2 tables was reported when the lowest expected frequency in any cell is < 10. Indicates significance only, no value given.

! = Violates the assumption that at least 80% of cells have expected frequencies of 5 or more.

Dog breed key: LR = Labrador retriever; GR = Golden retriever; GSD = German shepherd dog; 1st x = first cross breeding.

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Massey University
COLLEGE OF SCIENCES

Exploring the Match between Handlers and their Guide Dogs

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RNZFB GUIDE DOG SERVICES

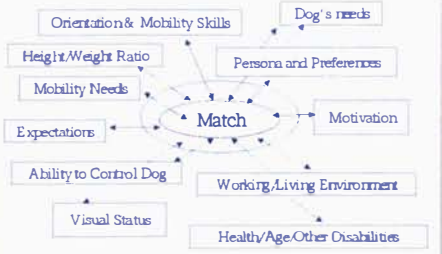
The Research Problem:

- Not all matches are successful
- Aim was to help Guide Dog Services predict appropriate matches
- Objectives were to explore handler and guide dog relationships to establish compatibility, and to identify the factors that influenced the outcome of the match

Definitions:

- *Matching* - finding the most suitable guide dog available for a particular individual
- *Compatibility* - the behavioural, physical and psychological fit of the handler-dog team, as defined by the handler, with regards to work-related (mobility) and non-mobility issues

The Matching Process



The Study Examined:

- Expectations and Outcome (results shown)
- Compatibility and Success (results shown)
- Why Partnerships Cease
- Quality of Life
- Mobility

Participants and Dogs in the Sample:

- 50 participants / 118 dogs
- 1 - 8 dogs used over 1 - 20 yrs (M = 4.5)
- 26 females, 24 males
- Age ranged from 17 - 75 yrs (M = 37.6)
- Varying visual function
- Several breeds of dog used
- 74 bitches, 44 male dogs

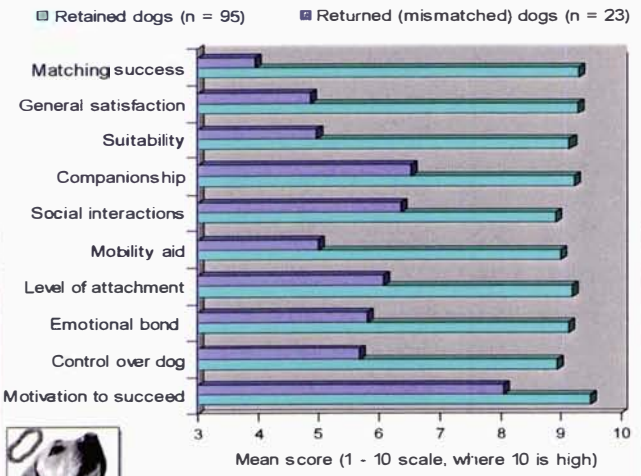
Handlers' Expectations* of Guide Dog Use:

- Mobility
  - Enhance travel abilities (80%)
  - Increase independence/freedom (62%)
- Social-function
  - Improve social interactions (78%)
  - Ice breaker/social catalyst (62%)
- Companionship
  - Companion/friend (90%)
  - Sharing experiences/confidant (64%)
- Other
  - Increase in self-esteem/motivation (18%)
  - Personal security (12%)
- Behavioural
  - Good socially/personality (88%)
  - Working ability (82%)
- Physical
  - Particular breed (64%) - Labrador retriever
  - Size (56%) - small to medium

Outcome of Expectations:

*All questions were open-ended

Handlers' Satisfaction with Matches



Means for both groups of dogs differ at $p < .0005$ on MANOVA for all items

Conclusions:

- Expectations of guide dog use were mostly well met or exceeded
- Around 80% of dogs remained in partnership with their handlers - most of the dogs that did not were returned for issues that pertained to mobility, followed by poor social/home behaviour
- Successfully matched handlers rated their dogs significantly better than unsuccessfully matched handlers did on all categories of satisfaction
- Both work (mobility) and non-work (companionship/social) aspects made significant and independent contributions to matching success, with compatibility concerning work being the greater predictor
- The dog enhanced quality of life
- Handlers had a more positive perception of mobility performance when they used a guide dog

Ethical approval to conduct the study was granted from Ngati Kapo, Massey University and all Regional Health and Disability Ethics Committees. Photographs were reproduced with permission from the RNZFB.
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