

# **Animal Therapy for Elderly with Memory Disorders**

A Literature Review

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Animal Therapy for Elderly with Memory Disorders  
Human Ageing and Elderly Service

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<p>Abstract:</p> <p>Memory loss is not a natural and normal part of ageing, but rather a symptom of a disease process. Most individuals with memory loss experience emotional distress or behavioral problems. There is an enormous amount of pressure on caregivers to manage individuals with memory loss without resorting to the use of pharmacologic and/or physical restraints. Animal assisted therapy is an intervention that can be implemented by caregivers as an alternative method.</p> <p>In this thesis paper, research of animals in therapy for elderly is reviewed and used to provide a guide on the topic. A history of animal therapy, definitions of terminology, and a summary of types of therapies using animals. Research in animal therapy involving elderly is reviewed, followed by a discussion of benefits, challenges and ethical considerations. Well being of animals in elderly therapy is explored, followed by summary, possible future directions in animal therapy and a conclusion. The aim is to provide thoughtful and practical information for the caregiver interested in animal assisted therapy.</p> <p>The research questions used are:</p> <ol style="list-style-type: none"> <li>1. What is animal assisted therapy and how can it be used in an elderly setting?</li> <li>2. What are the documented effects of animal assisted therapy on elderly clients with memory disorders and can it help those elderly with inappropriate behaviors?</li> </ol> <p>The theoretical frameworks used are based on the Biophilia theory and the Social Support Theory, primarily the emotional and companionship aspects. Limitations encountered were lack of concrete evidence and limited Gerontology journals. Material was gathered using electronic databases and available research.</p> <p>Animal therapy is a promising alternative or complimentary intervention that can be used to manage inappropriate behaviors in the elderly.</p>	
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<p>Sammandrag:</p> <p>Minnesförlust är inte en naturlig och normal del av åldrandet, utan snarare ett symptom på en sjukdom process. De flesta personer med minnesförlust erfarenhet känslomässig stress eller beteendeproblem. Det finns en enorm mängd press på vårdgivare att hantera personer med minnesförlust utan att tillgripa användning av farmakologiska och / eller fysiska begränsningar. Djurassisterad terapi är ett ingrepp som kan genomföras genom vårdgivare som en alternativ metod.</p> <p>I denna avhandling papper är forskning av djur i terapi för äldre över och utnyttjas för att ge en vägledning i ämnet. En historia av animaliskt terapi, definitioner av terminologi, och en sammanfattning av olika typer av behandlingar med djur. Forskning om djurs terapi där elderly granskas, följt av en diskussion om fördelar, utmaningar och etiska överväganden. Djurens välmående hos äldre terapi utforskas, följt av sammanfattning, möjliga framtida riktningar i djur terapi och en slutsats. Syftet är att ge tankeväckande och praktisk information för vårdgivaren intresserade djurassisterad terapi.</p> <p>De forskningsresultat som används frågorna är:</p> <ol style="list-style-type: none"> <li>1.Vad är djurassisterad terapi och hur kan den användas i en äldre miljö?</li> <li>2.Vilka är dokumenterade effekter av djurassisterad terapi på äldre kunder med minnesstörningar och kan hjälpa dem äldre med olämpliga beteenden?</li> </ol> <p>De teoretiska använda ramverk bygger på Biophilia teori och det sociala stödet teori, främst de känslomässiga och sällskap aspekter. Begränsningar stött var brist på konkreta bevis och begränsade tidskrifter Gerontologi. Material samlades med hjälp av elektroniska databaser och tillgänglig forskning.</p> <p>Animal terapi är ett lovande alternativ eller gratis ingrepp som kan användas för att hantera olämpliga beteenden hos äldre.</p>	
Nyckelord:	Kustaankartano, djurassisterad terapi, äldre, minnesförlust störningar, Biophilia teori, socialt stöd teori, olämpliga beteenden
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<p><b>Tiivistelmä:</b></p> <p>Muistin menetys ei ole luonnollinen ja normaali osa ikääntymistä, vaan oire sairaudesta. Useimmat yksilöiden muistinmenetystä kokemusta ahdistusta tai käytöshäiriöitä. On valtavasti paineita omaishoitajien hallita yksilöiden muistin menetys turvautumatta käytön farmakologinen ja / tai fyysisiä rajoituksia. Eläinten terapia on interventio, joka voidaan toteuttaa huoltajille kuin vaihtoehtoista menetelmää.</p> <p>Tässä työssä paperi tutkimus eläinten hoito vanhusten tarkastellaan ja käytetään antamaan oppaan aiheesta. Historia eläinten hoidon määritelmät terminologian ja yhteenvedo eri hoitojen avulla eläimiä. Tutkimus eläinten hoidossa mukana el-epätavanomaista tarkistaa, seuraa keskustelua etuja, haasteita ja eettisiä huotions. Eläinten hyvinvointia iäkkäillä hoito on tutkittu, seuraa yhteenvedo, mahdollisia tulevia eläinten hoito ja johtopäätös. Tavoitteena on tarjota huomaavaista ja käytännön tietoa hoitohenkilökunnan kiinnostunut eläinten terapia.</p> <p>Tutkimuksen kysymykset ovat:</p> <ol style="list-style-type: none"> <li>1. Mikä on eläin terapia ja miten sitä voidaan käyttää vanhusten ympäristössä?</li> <li>2. Mitkä ovat dokumentoituja vaikutuksia eläinten terapia iäkkäille asiakkaille muistihäiriöiden ja se voi auttaa niitä vanhuksia, joilla sopimatonta käyttäytymistä?</li> </ol> <p>Teoreettisia viitekehyksiä käytettiin perustuvat Biophilia teoria ja sosiaalinen tuki Theory, lähinnä emotionaalista ja toveruutta näkökohtia. Rajoitukset kohdanneet olivat ole konkreettisia todisteita ja rajoittunut Gerontologia lehtiä. Aineisto kerättiin käyttäen sähköisiä tietokantoja ja käytettävissä tutkimukseen.</p> <p>Eläinten hoito on lupaava vaihtoehto tai ilmainen interventio, jota voidaan hallita sopimatonta käyttäytymistä vanhuksilla.</p>	
Avainsanat:	Kustaankartano, eläin terapia, vanhuksset, muistinmenetys häiriöt, Biophilia teoria, sosiaalinen tuki teoriaa, sopimatonta käyttäytymistä
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## **FOREWORD**

I would like to thank Arcada University of Applied Sciences for allowing me to spend three and a half years of my education in their gracious halls, providing a variety of teachers, classmates, and learning experiences. While not always agreeing with the methods, each experiences has been an opportunity to learn something new and to grow as an individual; personally and professionally.

Birgitta Dahl interviewed me as a potential student almost four years ago. Through the years, she has offered tireless support and guidance, and exhibited extreme patience. Solvieg Sundel has been an inspiration of holistic methods and the gentleness of a caring soul. Through the years she has been our rock and support. Elisabeth Kajander and Maj-Len Törnqvist have offered much guidance and support in the writing and nature of a thesis. They have went out of their way to make sure this thesis reached completion and that it is a viable tool for those who need it.

Kustaanokartano Elderly Center has provided so much inspiration, along with their head nurse, Erika Salerno. Not only has she let us visit as much as we would like; she has tirelessly answered questions and offered support. Their program is an inspiration.

I would like to acknowledge my very patient family, for their tolerance, support and understanding during my study time. Special thanks to my husband Matt who has emotionally supported me with his companionship and made it financially able to study. My children: Brandi and Sarina, for tirelessly listening to presentations, complaints and inside jokes. My dog Lenny for showing me how wonderful it is to have an animal companion, full of devotion and love, and how much it helps when you are down. His loyalty and attachment constantly amazes me, and gives me pride in promoting such an important service for the elderly community.

Especially important to thank and acknowledge are my graduating classmates of HAGEL 09. In the beginning, we were all complete strangers on a similar path. We have disagreed and fought, argued and debated...and we have bonded. We have stood up for each other, watched our personal lives change, and experienced many joys along with many heartaches. Through the years, though we have lost a few of our group to

other paths, we have maintained contact. These bonds that have been created are permanently fixed to our hearts. Finally, here we are, at the end of this journey.

Aija Korhonen has a special place in my thanks...though quite small in stature; her heart could engulf all of Finland with the love and devotion she has for the elderly, and her friends. Time and time again, she has helped me to see 'another way' of thinking that I will carry with me throughout my personal and professional life. Malla Ylen-Julin has been a devoted friend and classroom companion. Tirelessly devoted to research and knowledge, I cannot help but want to work harder, learn more, and push myself to keep up with her. Never afraid to point out inconsistencies or errors, her keen eyes have made me more aware of the value and quality of my work. Verite Sikwe Kunnapp has truly shown me what hard worker can achieve. Forever able to balance home life, studies, employment and friendships, her efforts are an inspiration to us all. Such love and compassion for the elderly, such a gentle nature, she is a great example of the type of role model we need working with our elderly. Xin Zhao has demonstrated extreme devotion and effort, throughout the whole school time. Her love for the elderly knows no bounds, and she has been a joy to have in our group. All of you girls have made a tremendous impact on my life, and I could not have made it this far without you. Truly it was written in the stars for us to become a class! None of us would be exactly who we are without the others. We will carry these memories with us all of our lives, and reflect back on them with fondness and joy.

Special thanks to those who have helped with the editing of this thesis and offered valuable insight, ideas, critique and suggestions; Heather Cattles, Malla Ylen-Julin, Elena Lezhnea, you have spent your time and energy to help this product become polished and understandable, and offered so much moral support. Thank you.

To so many others in my life, there is not enough pages in my thesis to thank you properly. Thanks to all involved who have contributed in getting us to the finish line!

## **INTRODUCTION**

This thesis paper, *Animal Therapy for Elderly with Memory Disorders, A Literature Review*, hopes to be a guide, not only for the commissioning party, but whoever loves the elderly and loves animals, and wishes to make a difference using alternative methods.

In the introduction sections, the author will describe the background of animal therapy and go into the motivation for choosing this research topic. Discussed will be why animal therapy and elderly are an important and relevant topic. The aim of the study will be precisely stated to help provide focus on the research questions.

The limitations of the review will explain how the author limited the scope of the area and what fell beyond the study and why. The theoretical framework will explain the earlier research in animal therapy and establish the relevance of this work. The theoretical framework chose for this thesis are the Biophilia Theory and the Social Support Theory. They will be defined and explained how they are the backbone of this research. Main concepts of animal therapy will be defined.



# 1 BACKGROUND

This thesis paper was commissioned by the Kustaankartanon Vanhustenkeskus in Helsinki. The contact person was Erika Salermo, head nurse of C1, the memory loss unit for Swedish speaking elderly.

Animal assisted therapy is still a new form of treatment at Kustaankartano, so this thesis will not only shine more light on the topic by providing evidence, but hopefully offer more methods and help to continue the efforts.

At this time, some of the employees at Kustaankartano will bring their own dog to work with them. There is a policy that only one dog per time is allowed per person to avoid any chaos. The dogs are allowed to freely socialize with the elderly, but from time to time they keep them on a leash.

Living at the C1 Care unit is an Asian cat named 'Remu'. Kustaankartano's head nurse Erika Salermo (2012), feels that he is a perfect choice for the residents.

Because 'Asians' are very affectionate and demand an owner who will pay attention to it, interact with it, and always hug and hold them frequently. As you can probably imagine, our long-term unit is the perfect place for Remu to get all the attention he ever wants. He always seeks to get physical contact with our elderly and climbs or jumps into their laps.

At Kustaankartano, they are actively seeking benefits through 'alternative' methods such as animal therapy. Some therapeutic benefits which they have noticed include: reduced feelings of depression, loneliness, boredom and anxiety. "Most importantly, the presence of pets always brings on smiles!" (Salermo, 2012)

## 1.1 Motivation

The motivation for the author choosing this research topic follows. The author's previous studies and professional work has been with children, sometimes in a therapy setting. Animals have proven to be quite useful as not only a coping mechanism, but as a therapy tool. Time and time again, the author has seen animals provide a service no human can offer in the way of companionship during difficult or lonely times.

Upon moving to Finland, the author was quite surprised to find a culture that has virtually isolated itself from contact with neighbors, friends, or even family. In old age especially, it was noted that those in retirement homes were often alone. Whether by choice, or other reasons, it seemed to just be part of the way things were.

However, the author acquired a family dog in the autumn of 2011 which brought some new discoveries. Immediately upon seating in public transport, normally quiet and reserved Finns would strike up a conversation. Granted, the conversation was usually directed at the dog, but the author found it surprising to see the difference in socialization. Elderly especially seemed to almost ‘glow’ at the attention received back from the dog, and running their fingers through the dog’s fur seemed to rejuvenate them.

When the author found that Kustaankartano was offering a thesis project with this topic, she knew that she wanted to be the one to write about this important issue.

## **1.2 Aim**

The aim of this paper is to create a relevant literature review regarding animal therapy and elderly people, primarily having to do with memory loss disorders. A literature review refers to any compilation of materials on a topic, and the capacity to review and combine the point of view and thoughts of others without adding new information. (UNC, 2010)

The aim of this literature review is to summarize some of the accessible literature based on animal assisted therapy within elderly care. There will be a review of current and past research done on animal assisted therapy. This is a collection of relevant topics related to animal therapy and can be a guide to learning more about the topic.

Primary objectives beyond the research questions is to introduce the use of animal therapy as an complimentary intervention for clients, looking at the history, the potential benefits and risks, types of animals used, ethical implications and the future of animal assisted therapy.

Literature reviewed will be those that focus on researching, documenting, interviewing, and observing the process of animal therapy, with a sharp focus on animals in elderly lives. The incorporation of animal therapy into nursing homes will be analyzed.

In addition, the subject of animals used in elderly care will be explored to evaluate how animal assisted therapy can be included in the care for clients with memory disorders, effects of animal assisted therapy on inappropriate behavior, and the possibility of improving the health status of elderly.

In working with elderly clients, it is important to know about the past and current research regarding methods that are alternative or complementary to medications.

Animal therapy has been suggested to make significant positive impacts on clients. In working life, these applications are available and can possibly improve the mental health and rehabilitation of clients, and ease the care requirement pressure for the staff.

Integrating animals into the field of elderly care has both benefits and challenges, and to ensure it is the right fit for a client, a caregiver must ask, “What do I need to know to make an informed decision to practice animal assisted therapy in elderly care?”

As Chandler (2005) stated, the person working with animal assisted therapy should be knowledgeable in all aspects of integrating animals into therapy to ensure they are minimizing harm to both the client and the animal, and to recognize how to best use the approach to benefit the client.

In the past, the majority of literature on animal assisted therapy seemed to only focus on the positive aspects of the broad field (Beck & Katcher, 1996) rather than contemplating the inherent challenges and ethical considerations. This paper hopes to not only educate about animal therapy but to consider the entire picture.

### 1.3 Research Questions

This paper is a systematic literature review. A systematic review is a comprehensive study focused on a research question (or questions) that sums up the best available research on a topic. Literature reviewed is checked for quality and reliability and then the writer identifies, appraises, selects and synthesizes research pertinent to the research question(s). (Aveyard, 2010).

The objective of this literature review is to answer the following research questions:

1. What is animal assisted therapy and how can it be used in an elderly setting?
2. What are the documented effects of animal assisted therapy on elderly clients with memory disorders and can it help those elderly with inappropriate behaviors?

These research questions were based on the wishes of the commissioning party, Kustaankartano Elderly Center. The expectations of this review are to have a clear, concise idea of animal therapy with elderly for quick and easy reference; to look for current scientific research that support more than just anecdotal remarks; and to support Kustaankartano's current work in animal therapy, but also to consider any other implications that may be involved.

The stated research questions hope to enlighten the reader and the commissioning party on defining the meanings of animal assisted therapy; to explain all of the similar terminology, while focusing on the ways and methods of incorporating animals as a form of therapy in an institution.

The first research question, "What is animal assisted therapy and how can it be used in an elderly setting?" is broken down into two parts. Section 1.6, *Central Concepts*, and 1.6.1, *Definitions*, describes the main concepts of animal therapy, and give definitions of the various terminologies used in animal therapy. Section four of this paper, *Animal Therapy*, will continue by describing the history and species used in animal therapy, but

also gives references of how animals are being used for therapy purpose in an elderly setting, and how to add animal therapy to a facility.

The second research question, “What are the documented effects of animal assisted therapy on elderly clients with memory disorders and can it help those elderly with inappropriate behaviors?” will also be broken down into two parts. Section five, *Research Results*, will go into immense detail on answering both parts of this question. The documented effects of animal therapy on those with memory loss disorders will be shared and dissected in the hopes of finding new ways to cope with elderly who have challenging and inappropriate behaviors.

Of course, the research questions are considered throughout the paper, and all research and written information relate around the questions.

It is hypothesized that visits by animals to elderly care homes can bring numerous benefits to the elderly. Some of these benefits are that the elderly may be more relaxed, be less lethargic, have diminished agitation and be less aggressive and have need of fewer medications. As it is difficult to accurately measure feelings, especially those in clients with memory loss disorders, much of the evidence probably will be anecdotal.

## **1.4 Limitations**

The author chose to limit the scope of the topic of animal therapy to focus on areas with the elderly, primarily those with memory loss disorders. In the search for material, the following issues created limitations in the study.

Beck and Katcher (2003) listed some of the main limitations of researching animal assisted therapy to include conflicting methodology and justification, varying belief systems about the value of animals in therapy, the wide variety of the definitions of animal assisted therapy, an inconsistency amongst professionals and practitioners, and varying degrees of the level of intentionality in how animals were involved.

A large majority of past studies have declared over and over again that using animals provides encouraging outcomes, even positive incentives in clients with dementia (Laun, 2003), but many of these studies have been one time type studies or had procedural insufficiencies, so any outcomes should be viewed with care.

One fundamental limitation is finding a way to measure results accurately and reliably, and be able to repeat the results. In some studies, researchers have measured the cognitive functional state using standardized tools, (Kanamori, et al., 2001) some have measured pre and post therapeutic activity for indication of improvement in inappropriate behaviors and social contact (Tanner, 2003). There seems to be no set standard for how to measure the effects of the therapy. In general, those tests cannot be replicated exactly.

Many of the studies cited have a propensity to be qualitative, with little quantitative statistics. Most of the research found was not able to provide statistical evidence that is normally contained in a randomized control trial base according to the hierarchy of evidence (Bridges, et al., 2009), instead ranking at the bottom with anecdotal evidence.

Fine (2006) and Chandler (2005) both reflect that the intricate nature of constructing a research design that can correctly contain the variables when the research subjects are both humans and animals. Because quantitative or qualitative measurements on their own may not fully describe the experience of a client, they suggest a mixture of qualitative and quantitative data to have a better understanding of the results.

Asking elderly people that have severe memory loss for reactions and feelings to activities with animals, or asking them to fill in standardized questionnaires can often be quite difficult, so other methods of gathering this information have to be established. This is quite often the researchers own interpretations, and these can be untrustworthy, especially if a researcher is looking for specific outcomes (Bridges, et al., 2009), creating researcher bias.

Other limitations for the writer of this paper included lack of access to Gerontological journals. There have been newer studies completed with elderly and animal therapy, and while the abstract looks promising, the author of this paper does not have access. While there are older studies readily available, they are available to anyone with access to the internet, and may not the most current research being done.

## 1.5 Theoretical Framework

In working with elderly and memory disorder clients, it is essential to know about the past and up to date research regarding methods that offer alternative or complementary options to medications. Animal therapy has been suggested to make significant positive impacts on clients (Beck & Katcher, 1996).

Animal therapy research can add to building up and adding to the field of elderly care and working life benefits. The benefit for the caregivers in Kustaanokartano will be that they will have a more thorough knowledge of the whys and hows of animal therapy and be able to use the thesis as a guideline for structuring their work and practices. Clients will benefit by perhaps taking fewer medicines, and having a more meaningful day by enjoying the animals in the environment, bringing joy and a positive distraction to their daily routine.

Kustaankartano as an organisation may benefit financially if fewer medications are used.

The earlier researches and theoretical framework create a solid base for the thesis. All references used are of a high quality, well researched, and reliable. The research reviewed is on methods, studies, and the results of animal therapy. Literature reviewed is critically analysed. The chosen literature is from studies that can be proven, are well documented, and have adequate knowledge of the subject. They are comprehensive and well described. All concepts are well defined.

The positioning and connection to earlier research is that the thesis focuses on combining the earlier researches into a comprehensive literature review that is easily accessed and reviewed. All of the literature has been critically reviewed and dissected in the hopes to provide much information for Kustaankartano Elderly Center, and any other interested parties.

In working life, these applications are available and can possibly improve the mental health and rehabilitation of clients while reducing stress and workload for staff. The

reduction on medications can have a financial gain, as well as decreasing possibility of side effects.

This paper will offer the psychological constructs of Biophilia theory and two components of the Social Support theory as the theoretical framework to help explain why animals may be so important in supporting a person's well being.

### **1.5.1 Biophilia Theory**

Biophilia theory, conceptualized by Erich Fromm (1964), is a theory that explains a psychological direction of being connected to everything that is living and essential, and there is a natural connection linking people and other living organisms. In the presence of animals there is a positive physiological response which occurs, that automatically draws and keeps a person's attention. In general it is assumed that, given an opportunity, people naturally wish to be in the presence of an animal.

Edward O. Wilson further expanded on Fromm's theory in a book, *Biophilia* (1984). He defined the theory of Biophilia as, "the urge to affiliate with other forms of life". Wilson suggests that the connections people have with animals and nature are based in genetics.

Biophilia is broken down into two parts: bio, meaning biological, relating to biology or living organisms; and philia, meaning the appeal and "positive feelings that people have toward certain habitats, activities, and objects in their natural surroundings" (Dictionary.com, 2012).

Fromm (1964) and Wilson (1984) both agree that human fondness to nature, though developed through experience, background and culture, are theoretically the creation of biological development.

Humans in general are attracted to the faces of baby mammals, especially their large eyes and small features; they can be more interesting than the full grown mammals. The Biophilia theory proposes that the positive reaction that people have to infant animals, helps continue the survival of species (Wilson, 1984).



The Biophilia theory explains why people tend to take care of, and even put themselves in danger to save animals, and why people have an interest in keeping plants and flowers. In other words, a person's natural love for life helps continue life.

It may be ingrained from our ancestors, the necessity to know the plants that will provide nutrition. Many fruits start their development as flowers, and flowers may indicate later prospective for food. (Biophile Magazine, 2012).

### **1.5.2 Social Support Theory**

Social support theory is explained as the feeling and certainty that a person is taken care of and has support available from others, and is a part of an encouraging social network. Social support is considered as the opinion that one has assistance available; tangible assistance, or the amount that someone is included in a social network. A person's circle of social support can be relatives, acquaintances, friends, companion animals, social groups, coworkers, etc (Taylor, 2011).

Supportive resources can be informational, concrete, emotional, or companionship. For this theoretical framework, the focus will be on the emotional support and companionship areas of the Social Support theory.

The Emotional Support aspect of the Social Support theory can be defined as the offering of caring, understanding, encouragement, empathy, warmth, affection, love, trust, intimacy, concern, or acceptance. Offering emotional support can help a person feel that they are appreciated (Willis, 1991). It is considered that the 'love' that animals or pets give to the people around them, can be a form of emotional support.

The Companionship Support aspect of the Social Support theory can be defined as support that supplies a person a feeling of social inclusion. It could be the presence of companions that connect in group activities (Uchino, 2004). Not only is it thought that having an animal provides a social outlet for their owners, but the animal itself offers the role of companion.

## 1.6 Central Concepts

The literature cited has many wordings to portray animal therapy: animal assisted therapy (Hatch, 2007); animal assisted activities (Edwards & Beck, 2002); animal visitation (Beck & Katcher, 2003); pet therapy (The Chimo Project, 2011); resident pet therapy (McCabe, et al., 2002); animal assisted interventions (SCAS, 2010) human-animal bond therapy (Fine, 2006); companion animal therapy (Prosser & Staiger, 2008); and therapy animal (Bardill & Hutchinson, 1997).

For this paper, the focus will be on the most prominent uses of the lingo, and utilize the definitions set forth by organizations that specialize in animal assisted therapy in all its forms.

To promote the consistency of animal assisted therapy jargon, the Delta Society Animal-Assisted Interventions in Mental Health (Delta Society, 2012), a leading group that determines animal therapy qualifications in the United States, has tried to specify the definitions of what makes up animal therapy and make them universal. Other organizations have supplemented additional definitions.

To qualify for animal assisted therapy: the animal must meet precise criteria that fit the therapeutic goals; all treatment must be documented and evaluated, the animal is measured an essential part of the treatment; therapy is directed by a qualified professional or practitioner; beneficial intentions include physical, social, emotional, or cognitive gains; and therapy can happen in group or individual sessions.

The language in animal therapy differs extremely and is often used interchangeably in literature and on websites. Depending on the location, the need, the services, and the laws, and many other factors, there may be more and varied definitions. For the purpose of this paper, the above definitions will be utilized.

There is also the thought process that perhaps it is not so important what the name for the activity is called, but more that the animal is used in a manner of good to help promote positive interactions with the elderly (Brodie & Biley, 1999).

### 1.6.1 Definitions

Animal assisted therapy, also known as AAT; is defined as, “an intervention in which an animal that meets specific criteria is an important part of the treatment process”. Animal assisted therapy is intended for therapeutic purposes and carried out by a professional with dedicated knowledge of this profession. The main objective involves particular goals and objectives for each person and calculated development (Delta Society, 2012). AAT is, “intentional and therapeutic, whereby the animal’s role is integral in assisting with mental health, speech, occupational therapy or physical therapy goals, and augments cognitive, physical, social and/or emotional well-being”.

Animal assisted activity: also known as AAA; is, “an activity that provides opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life”. Animal assisted activities are defined by the Delta Society (2012) as:

The integration of animals into activities to facilitate motivation, education and recreation, encouraging casual interaction without following a specific set of criteria or goals. Animal assisted activities could include volunteers and their pets visiting a nursing home to encourage positive socialization and interaction amongst residents.

While considered therapeutic in nature, animal assisted activities have no set goals, and no planning or evaluation is required.

Therapy animals are typically private pets of their owners, and the animals work with their owners to offer services (Bardill & Hutchinson, 1997). This can be an animal that has been trained from an organization, and the handler brings the animal to care facilities.

A companion animal is another term for pet (Dictionary.com, 2012).

Pet visitation therapy is a term used by the Pet Access League Society (PALS, 2012). PALS offers enhanced quality of life utilizing animals. Through their pet visitation therapy program, PALS, volunteers and their animals visit facilities such as nursing homes, correctional centers and day homes. They state the pet visitation therapy is where the visits don’t have a specific direction and animals are not involved in a deliberate way to help clients reach specific therapeutic goals.

Pet therapy is explained by the The Chimo Project (2011) as pet visitation *and* animal assisted activities, together. The Chimo Project is an organization committed to developing, planning and implementing animal assisted therapy.

## **2 METHODOLOGY**

Utilizing information from the book, ‘Doing a literature review in health and social care: A practical guide’ (Aveyard, 2010), the Thesis Guide from Arcada (Hertzen & Stolt, 2009), and the evaluation criteria for the final thesis product (Arcada, 2011), the author was able to create the structure of the paper.

By reviewing the literature, this paper hopes to significantly examine the helpfulness of animal therapy for elderly clients with memory loss disorders and reflect on the implications for practice.

Since this paper relies on previous researches and theories, a deductive content analysis was chosen as the best analyzing tool to review the selected articles. According to Elo & Kyngäs (2008), “a deductive content analysis is used when the structure of analysis is operational on the basis of previous knowledge”.

In general, deductive research is the process of combining thoughts from sources regarding what is known to reach a conclusion about a topic (Dictionary.com, 2012). Content analysis is a technique to analyze research data for the use of information in interest or with the hope to discover or clarify a subject, and answer a research question (Krippendorff, 2003).

The collection of data was done by using a database search. The selection of databases for electronic searches was based on if full text literature was provided and on meeting the search criteria. It was decided to use many different electronic databases because using multiple databases can help to achieve a well structured comprehensiveness.

The following computerized databases were utilized: EBSCO, BioMed Central, CINAHL, Cochrane Library, Ebrary, Elite, SAGE, and Google Scholar. Each of these

databases provided peer-reviewed research literature in various aspects or areas of animal assisted therapy.

## **2.1 Methodology Ethics**

When the topic was decided, a thesis short-plan was written and explained to the overseers at Arcada University of Applied Science. The literature review was commissioned by Kustaankartano Elderly Center with permission from Arcada University of Applied Science. After advice, critique and focus was applied, the author was given permission to begin writing the thesis.

The author read and reviewed the procedure for ‘Good Scientific Practice in Studies at Arcada’. This is a set of guiding principles intended to shed light on issues such as integrity, ethics, honesty, and plagiarism (Arcada, 2011). The author has applied good scientific practice in the writing of this thesis. The author has documented all research material, and any information gathered for this paper has been quoted when needed, or summarised to explain the information.

The information gathered in this thesis is published material already having consent and public access is allowed. No new material was collected in this review. The author reviewed the literature in a neutral and objective fashion. There were no interviews, observations or personal studies done by the author of this thesis. The author tried to avoid being biased in analyzing the research that was collected.

## **2.2 Description of the Material**

Initially, to find what type of literature existed and to gain suitable background knowledge, entering a variety of key words into the databases turned up numerous researches. As documents were found, and researches read, the list of key words grew. See Table 1.

*Table 1. Key words, subject area, and topics utilized in database search.*

<b>Words or phrases having to do with animals</b>	<b>Words or phrases affiliated with elderly</b>	<b>Words or phrases affiliated with therapy</b>	<b>Words or phrases affiliated with illness</b>	<b>Abbreviations</b>
animal assisted therapy, animal therapy, animals in nursing homes/institutions, four-footed therapy, therapy dogs, pet therapy, equine therapy, pet-facilitated therapy, hippotherapy, equine assisted psychotherapy, animal assisted activities, pet assisted therapy, animal facilitated therapy, companion animals, pet visitation, animal-facilitated counseling, pet-mediated therapy, companion-animal therapy, animal co-therapy, dolphin assisted therapy, pet-oriented therapy	elderly, old age, older adults, aged, old, old people/persons, animals in homes for the aged/elderly, human animal relationships, effects	assist, assistance, assisted, therapy, therapeutic, animal assisted interventions	dementia, Alzheimer's, memory disorders, memory loss, palliative care	AAA, AAT, AAI, EAP, DAT

From these key words, many relevant articles were found, read, and useful information for the broad subject of the thesis was kept. However, for the literature review, variations of animal assisted therapy were deemed to be the most useful term for a broad search.

Narrowing down the search for articles, using “animal assisted therapy”, “animal assisted therapy” AND elderly, animal AND elderly, animal AND age, “animal assisted therapy” AND elderly AND “memory loss” as the key words yielded a total of 674 citations. See Table 2.

Table 2. Database search and numerical results.

Database	Search terms	Year range	Results	Selected Articles
Academic Search	animal AND elderly	2002-2012	183	5
BioMed Central	“animal assisted therapy”	2002-2012	5	1
CINAHL	animal AND age	2002-2012	329	1
Cochrane	“animal assisted therapy”	1999-2012	17	2
Ebrary	“animal assisted therapy”	2002-2012	11	1
Elite	“animal assisted therapy”	1999-2012	15	1
SAGE	“animal assisted therapy	1999-2012	90	3
Google Scholar	“animal assisted therapy” AND elderly AND “memory loss”	2002-2012	39	1
<b>Total</b>			<b>Total</b>	<b>Total</b>
7			674	15
Other resources, including pay articles and hard copies	animal assisted therapy, animal therapy, dementia, elderly, aged, old, old people/persons, animals, assistance, assisted, therapy, therapeutic, AAT, animal assisted interventions, human animal relationships, animals in nursing homes/institutions, animals in homes for the aged/elderly, memory disorders, memory loss, therapy dogs, pet therapy, hippotherapy, equine therapy, equine assisted psychotherapy, EAP, AAA, animal assisted activities, pet assisted therapy, Animal facilitated therapy, hospice, effects, palliative care, companion animals	2002-2012	?	2

Of the 674 articles reviewed, many were only abstracts or editorials that did not meet criteria or information that was not relevant to this paper. A total of 94 articles were thoroughly examined and only 15 articles met inclusion criteria. There were also two journals found outside the databases that met the inclusion criteria, bringing the literature reviewed to 17. (See Appendix 1 for full listing and descriptions of literature reviewed)

For the literature review 16 studies are analyzed, but many of the other papers that were examined still had quite useful information, and helped to build the scientific and background knowledge of the topics discussed.

Books and websites that focused on animal therapy were also used by the researcher to supplement the journal and database searches. The criterion for inclusion was that they include the keywords and provide factual information.

## **2.3 Inclusion and Exclusion Criteria**

The examination procedure of literature that meets the inclusion criteria expose and develop repeatable and a suitable deduction of facts (Krippendorff, 2003). An inclusion and exclusion criterion was created to recognize writings that supply information about the research questions and pinpoint the examination of the literature review.

The author was able to refine the inclusion and exclusion criteria that were necessary to focus the work and create realistic limitations (Elo & Kyngas, 2008). Inclusion criterion includes:

- Peer reviewed articles
- Articles on animal assisted therapy
- Assessment measures used on elderly
- Researches to study the effects of non-pharmacological interventions
- How to resolve inappropriate behaviors among elderly people in care homes
- Animal assisted therapy and possible changes to health
- Published articles between the years 1999 - 2012
- Written in English

Material that did not meet the inclusion criterion, were unable to answer the research questions, or not written in English were excluded. Although there were many relevant researches done prior to 1999, the author wanted to focus on newer studies that perhaps would not be so readily available to the commissioning party. Therefore, any research done prior to 1999 was excluded for the literature review aspect, but perhaps still used for the background knowledge and previous research concepts.



## 2.4 Validity and Reliability

Validity is the state or quality of having foundation; based on truth (Dictionary.com, 2012). The content analysis being valid refers to the amount in which a research correctly assesses or shows the notion that the researcher is attempting to calculate (Aveyard, 2010). This can mean whether a study measures what it claims to measure. “Validity encompasses the entire experimental concept and establishes whether the results obtained meet all of the requirements of the scientific research method”.

In this work, the author carefully studied the articles that were chosen. The articles that were used in this study were retrieved from trusted and reliable databases that strongly support scientific works, and contain research that has been done by professionals in their field and peer reviewed.

The definition of reliability is, “the extent to which a questionnaire, test, observation or any measurement procedure produces the same results on repeated trials” (Aveyard, 2010).

Ensuring the reliability of the literature review was done by making certain the research in the studies was properly executed. Also the author evaluated how the researchers used different types of measurement tools and evaluation scales. For example, many of the studies used the same measurement tools such as the Geriatric Depression Scale or the Mini-Mental State Examination (See Table 3), which aids in the generalization of data.

The reliability of the studies done in the research looked at how the measurement tools were used, and if they yielded consistent results. Even though most of the studies are more anecdotal in nature, having the consistency of familiar scales that can be used in new studies makes the research reliable and repeatable.

### **3 MEMORY LOSS DISORDERS AND AGEING**

Regular processes of ageing are not accountable for causing memory disorders but are linked to a decrease in cognitive and neural systems, as well as long term and working memory. There are many factors that contribute to memory loss disorders (Riddle, 2007). For this paper, we will focus on memory disorders that have created a type of cognitive impairment resulting in memory loss.

Dementia is a wide ranging word that is used to describe a decrease in mental capability severe enough to hinder day by day living. Dementia is not an illness in itself, but a set of signs and symptoms in which affected areas of cognition may be attention, memory, problem solving and language. (Alzheimer's Association, 2012) An assortment of epidemiological studies shows the incidence of dementias, especially those of the Alzheimer's type, are up to 25% for those over 85 years of age (DSM-IV, 2000).

Besides Alzheimer's, other types of dementias affecting memory are dementia with Lewy bodies, normal pressure hydrocephalus, vascular dementia, Huntington's disease, Parkinson's disease (PD), Frontotemporal lobar degeneration, Wernicke-Korsakoff syndrome (WKS) and various mixed dementias (Alzheimer's Association, 2012).

We must also consider other aspects that can create memory loss such as agnosia, alcohol abuse, amnesia, brain injury, some infections, and nutritional deficiencies (NIH - National Institute of Health, 2012).

For the purpose of this paper, most diagnosis (listed above) will be referred to as 'memory disorders' or 'memory loss disorders' unless a specific study states otherwise.

#### **3.1 Inappropriate Behaviors**

In someone who suffers from a memory loss disorder, the frontal and temporal lobes are affected. These are the areas of the brain that manage judgment and social behavior. A person with these types of memory disorders can suffer from anxiety, apathy, depression, irritability, restlessness, and trouble participating in social activities. Memory loss

sufferers may have difficulty sustaining ordinary interactions and abiding by social normality. They can demonstrate bad-mannered and socially unsuitable conduct such as repetitive verbalizations, suspiciousness, paranoia, sexually improper behavior, agitation, and wandering, and even verbal and physical aggression toward self and others (DSM-IV, 2000).

The management of these inappropriate behaviors in individuals with memory loss poses a difficult and challenging experience for caregivers. The conventional method that caregivers have used to manage inappropriate behaviors has been to administer chemical restraints by means of medications and/or apply physical restraints by means of belts or trays which keep the client immobile (Gurland & Cross, 1982).

These methods used in the past can cause complications. The use of any medication may increase the risk of confusion and impairment of cognitive functions, and the use of psychotropic medications in the elderly has been shown to increase the risk of falls. The elderly and individuals with memory loss disorders are more sensitive to side effects of psychotropic medications. General medical conditions and potential drug interactions can also result in serious complications in individuals with memory loss disorders (American Psychiatric Association, 2006). A type of treatment that has been suggested to address many of these symptoms is animal assisted therapy (Motomura, et al., 2004).

Attachment is the emotional feeling that binds a person to another person or a thing (Dictionary.com, 2012). It is considered to be one of the needs imperative for the preservation of well being in a person with a memory loss disorder (American Psychiatric Association, 2006). Attachment can be achieved through different relationships, even relationships with animals. Relationships with animals may have the capacity to produce a reaction in those who may not have reacted to other kinds of therapy. The reason being is that human-animal attachment is thought to be simpler than relationships with people and animals can provide unconditional acceptance (Brodie & Biley, 1999).

## **4 ANIMAL THERAPY**

Based on the earlier definitions, for the purpose of this paper, ‘animal assisted therapy’ or ‘animal therapy’ will be used as a general term for any activity, visitation or contact with an animal and an elderly person unless a specific research or organization states otherwise.

Animal therapy options in Finland include an organization called SATHY (Sathy, 2008) Association. This is a therapy dog program in Finland that began in the early 1990s. SATHY trains their dogs to be working therapy dogs. SATHY will visit organizations and institutions, such as homes for the elderly with therapy dogs. For other associations that may be listed in Finnish, consult Google or other internet search engines for options (Google, 2012).

### **4.1 A Brief History of Animal Therapy**

The earliest documentation of animals being used in a form of therapy is from the 1700’s, in England at the York Retreat. The York Retreat was an insane asylum and was notorious for its poor treatment of the mentally ill. Samuel Tuke, a Quaker philanthropist and mental-health reformer, wanted to treat clients with mental illness as humanely as possible. He took over the York Retreat, and began making positive changes. Included in these changes was letting the clients wander freely in the gardens filled with a variety of small animals. It was suggested that the animals encouraged social and compassionate feelings in the clients (Tuke, 1813).

The Bethlem Royal Hospital in London began using animals in experimental interventions in 1860. The institute had many free roaming domestic animals such as dogs, cats, birds, goldfish and rabbits for the patients as a means to promote patient well being and encouragement. This was considered positive care because these animals provided not only innocent pleasure but also a means for the patients to communicate to another living being and to initiate socialization and compassionate feelings. It was documented that the clients were observed to be cheerfully interacting with the animals; or in sad-

ness, if there was no other person to listen to them, sharing their stories with the dogs and cats (Allderidge, 1991).

Early nursing uses of animal assisted therapy can be traced back to the days of famous nurse Florence Nightingale. In her historical writings, she commented on the benefits of animals in patient care and recovery. Nightingale expressed that an animal is an exceptional friend for someone who is ill, particularly in long hospital stays. She theorized, "...that even a pet bird in a cage might be the only pleasure of an invalid confined for years to the same room" (Nightingale, 1859).

During the early 1900's, St. Elizabeth's Hospital in Washington, D. C. was the first documented institution to use animals as companions for the psychiatric hospital's patients (NIH, National Institute of Health, 1987).

The neurologist Sigmund Freud ascertained that dogs have an extraordinary intelligence that gives them the ability to read a person's disposition. For this reason, he permitted his own dog to be present at his therapy sessions. Freud admitted that he often depended upon the dog for an evaluation of the patient's mental position. He felt that the attendance of the dog appeared to have a soothing influence on all clients, particularly children. Freud claimed where the dog would lay in the room during the visit, would let him know about any anxiety or tension in a patient. Freud's observation was that the dog would lie nearby to patients that had a calm demeanor, and if the patient was tense, the dog would lie across the room (Coren, 1997).

A more extensive use of animals as rehabilitation and therapy began in 1944. In New York, at an Army Air Corps recovery facility, patients with traumatic combat experiences were encouraged to work with various animals at a farm at the hospital while they were recuperating (NIH, National Institute of Health, 1987).

In the 1960's, the psychologist Boris Levinson questioned over four hundred psychotherapists. The response was that about 35% had used an animal in a therapy context, and that about 30% had recommended for their patients to get a pet. Many therapists responded in the questionnaire, that they believed disorders like depression, anxiety, phobias, and schizophrenia could be alleviated by introducing an animal. Levinson then wrote reports of animal assisted therapy's effectiveness; however, the scientific com-

munity regarded it as a worthless notion. Levinson was not respected for his take on animal assisted therapy, but it is now realized that he had discovered a rising movement in psychotherapy (Beck & Katcher, 1996).

These beginning uses of animal in therapy purposes were soon overshadowed due to the discovery and consistency of psychotropic medications (Fine, 2006).

William Thomas, physician and geriatrician, created The Eden Alternative in the early 1990's. Dr. Thomas decided the three major problems within nursing homes were loneliness, helplessness, and boredom. He theorized that quite often nursing homes do not have the characteristics of a person's home; rather they are more of an institution. The Eden Alternative method uses animals, plants and children to interact with the residents. He ascertains that with these interactions, relationships among the patients, their families, and the staff are enhanced (The Eden Alternative, 2009).

More and more facilities are recognizing what Dr. Thomas has realized. Medications do not have to be a one sided answer to the physical, mental, or emotional issues faced by clients (Allderidge, 1991). Animal assisted therapy is one way that is being utilized today to serve as an alternative or complimentary method in care.

## **4.2 Species of Animals and Their Therapeutic Uses**

In this section, we will briefly discuss different kinds of animals used in a therapy context. Included will be a small amount of information on each. There will be some information on animal assisted therapy that involves horses, dolphins and farm animals, but the primary focus of information will be on dogs, cats, and even an alternative 'species', the robot animal.

The type of animal, the context in which the animal is expected to function, and the intent of the integration are some of the issues being addressed. An overview of therapies involving animals is offered. There will be more information on the animals that could have a bigger contribution to the lives of institutionalized elderly, and individuals with memory disorders.

### **4.2.1 Therapy with Horses**

The term Hippotherapy is defined by the American Hippotherapy Association Incorporated (AHA, 2010) as “the physical, occupational, or speech and language therapy treatment strategy that utilizes equine movement”. Hippotherapy is also known as Equine-Facilitated Psychotherapy, or EFP. On their website, the American Hippotherapy Association has described the therapy as, “a method of utilizing horse movement to compliment physical, occupational and speech-language therapy sessions, with therapy not limited to one type of practitioner”.

Hippotherapy and therapeutic horseback riding can be types of interventions that not only have physical benefits, but social as well (King, 2007). There are some theories stating that riding a horse can benefit stroke victims due to the rhythmic motion (Livestrong, 2012).

The majority of studies (Burgon, 2003) in Hippotherapy primarily focus on types of therapy with children, Cerebral Palsy patients, and rehabilitation of adults. However, with all the results there is a marked increase in functional ability and the positive benefits are numerous.

In a study conducted on elderly clients, it was concluded that after twice a week and thirty minutes a day of horse therapy was enough to be able to improve the static balance and to reduce the risk of falls (Toigo, et al., 2008).

However, we have to consider that institutionalized elderly may not have the means to receive such therapy. In these cases, there are many farms that will bring a miniature horse to the elderly facilities, as the case with The Teeny Tiny Farm. They bring the miniature horse to nursing homes as a therapy animal (Tennant, 2009).

### **4.2.2 Therapy with Farm Animals**

The diversity of a farm offers a variety of stimuli, and provides the basis for imaginative and assorted interventions. A farm can give the client an opportunity to gain not only

physical benefits and motivation, but emotional and educational benefits as well (Sweet Dream Therapy Farm, 2009). The variety of animals allows the client to choose the animal. The animals work in their home environment, reducing the stress for the animal.

It is suggested that it does not have to be just the visit to the farm that offers the best results, but working hands on can have a positive effect. Working on a farm can give a way for clients to get a type of physical contact. It is said that this can increase self-esteem and coping ability by doing routines such as feeding, milking, and taking care of the other living creatures on the farm (King, 2007).

A research conducted looked at psychiatric patients working with farm animals. They examined the effects on self-efficacy, coping and perceived quality of life. The results showed that, after working with the farm animals there was considerable increase in their coping ability and self-efficacy (Berget, et al., 2008).

As with hippotherapy, disadvantages could include location, transportation of clients, potential for serious injury, and a need for more people, such as an animal handler, that can be involved and on site (King, 2007).

There are no shortages of ‘traveling farms’ that will bring a variety of small farm animals to the nursing homes (Google, 2012). While these can be expensive, the issues of transporting the clients are resolved.

### **4.2.3 Therapy with Dolphins**

Dolphin assisted therapy (DAT), involves patients swimming with dolphins in the hopes that it will improve a mental or physical condition. Using dolphins for therapeutic reasons is founded on several factors; a dolphin’s positive approach to people; wish to create interactions, simplicity of instruction and management, out of the ordinary look and the capacity to carry out therapy in a marine location (Antonioli & Reveley, 2005).

Dr. Ludmila Lukina (2010) is part of a team that established a prominent dolphin therapy center dating back to 1986. On the website they claim:



The established means of dolphin therapy are: emotional stress with an elevation of psychological and physical activity of the patient and his or her responsiveness to external influences, including those of psychotherapeutic nature, retardation of pathological neuropsychological dominances and a formation of a positive attitude, improvement of psychological status and psychosomatic self-control, decrease in the strength of vegetative regulatory mechanisms.

It must be considered that holding a non-domesticated animal confined to serve people can be a controversial topic. Those that do not support this type of rehabilitation may criticize the many limitations in the research, the hefty expense incurred by clients and family members, and the over-all well being of the animals in confinement (Beck & Katcher, 1996).

Studies that have been done to show results of Dolphin therapy have been inconclusive, and even some pioneers of the field have reflected on the ethical considerations and withdrawn their support (College of Health and Urban Affairs, 2012).

Unlike hippotherapy and farm animals, dolphins are unlikely to be transported to the nursing home, and the previous concerns apply, added to the dangers of being in the water.

#### **4.2.4 Therapy with Dogs**

Historically dogs are the most common animal to use in the therapy setting. Interacting with dogs has been stated to alleviate anger, depression, loneliness, and stress (Allderidge, 1991). Dr Rebekah Johnson (2003) demonstrated this by showing the presence of neurochemical changes in elderly clients after contact with a canine companion. Among those changes were increased Phenethylamine (elation), Dopamine (energy), Endorphins (serotonin), Oxytocin (happiness), and Prolactin (nurturing), with Cortisol (stress) decreased.

McCauley (2006) conducted a pilot study using aphasia clients that received animal assisted therapy with a dog, compared to traditional speech therapy. In the end, each participant met the goals that was outlined. A final questionnaire summarised that the participants felt that the animal therapy had a lighter atmosphere and was less stressed

when compared to the regular speech therapy. It was also noted that there was a feeling of added motivation and enjoyment to the therapy with the animal.

Scheibeck, et al. (2011) used a gerontological perspective to examine the human-dog relationship and determined that elderly people benefit from interaction with dogs in numerous ways. Dogs have important meanings to elderly people and being in the presence of a dog contributes in a positive social manner to their lifestyle. Also considered was how a dog can supplement for human attachments that were lost or missing, such as a partner that had died.

As Fine (2006) explained, human-dog partnerships traditionally provided a service for clients with disabilities, such as dogs assisting people with visual impairments; and have continually moved forward to put dogs into therapy services as well.

Marx, et al. (2008) conducted studies to find the how persons with dementia interact with various dog-related stimuli. They found providing a puppy video to watch versus a real dog visiting, that the enjoyment rate was much higher for the puppy video. This something to consider when providing for memory loss clients.

Treatment includes providing safety and offering independence to the client. Dogs are now one of the primary animals involved in animal assisted therapy (Beck & Katcher, 1996).

As with other animals, integrating dogs avail certain benefits and challenges. Traditionally speaking, dogs have long been ingrained to obey commands and offer tireless devotion. Contemplation of the dog's disposition and friendliness, trainability, predictability, and capability to handle stressful situations is principal. Chandler (2005) recommends correlating a dog's disposition and activity level to the client, along with provision for exercise, grooming, feeding and a place to defecate.

To address animal welfare issues, organizations such as the Delta Society (2012), The Chimo Project (2011), and others have developed resources, education and training for volunteers with dogs who wished to pursue animal assisted therapy in their community.

Dogs have to give evidence of mastery of ten skills: acknowledge a sociable stranger, be well maintained, walk with a lead on, sit politely to be pet, go politely through crowded areas, sit and stay on when told, come when called, and respond calmly to other dogs, distractions, and separation from the handler. All therapy dogs must be current on vaccinations and be free of parasites.

#### **4.2.5 Therapy with Cats**

Felines are another species that are often integrated into therapy. In general, cats have an attitude towards humans that seem to be based on a 'give and take' relationship. There should be a respect for their independent nature in contrast to human-horse or human-dog relationships. Chandler (2005) listed the following attributes for cats in therapy: tranquility and calmness, comfort with being touched, and enthusiasm to be around people. Playful cats can offer cheerful moments and invite participation and activity.

With little client effort, cats can offer friendship by lying on a lap, brushing on the legs, or meowing for attention. Chandler (2005) describes disadvantages such as: a feline's predisposition towards introversion; a probable need for more breaks; a reduced amount of trainability, possible challenging behaviors; a need for constant access to a litter box; and a high occurrence of human allergies to cats.

To be classified as a therapy cat, cats have to demonstrate that they will walk on a harness and leash and accept petting. Cats also have to have vaccinations and a clean bill of health (Delta Society, 2012).

#### **4.2.6 Therapy with Small Animals**

Small animals, such as gerbils, hamsters, guinea pigs, birds, reptiles, rabbits and fish can be utilized in animal therapy. These smaller types of animals are a simple solution to organizations that have restrictions about animals or limitations on the available space (Flom, 2005).

These animals are a very simple and easy type of animal therapy. Often confined, they can live in the facility, and can become part of the environment with relative ease. They require very little maintenance and can provide visual and auditory stimulation. Also, persons with allergies to dogs or cats may not have any allergy issues with these small animals (Allderidge, 1991).

Each institution should consult their local regulations as some areas have restrictions on various animals; reptiles, because of the fear of Salmonella or birds due to bird flu (Fine, 2006).

An animal that is used should fit the client's needs, as well as fit into the daily schedule. The small animals may be suitable in places where clients might feel frightened by larger animals. Chandler (2005) stresses that some problematic areas involved in using these types of small animals are that they generally have a shorter life span, (ranging from two to five years) they have a propensity to be more delicate, and have a high vulnerability to injuries and stress-related health issues.

Edwards & Beck (2002) performed studies with Alzheimer's clients to evaluate how fish aquariums influenced their nutritional intake. They determined that when the aquariums were introduced the nutritional consumption increased significantly and continued to increase while the aquariums were present.

#### **4.2.7 Therapy with Robot Animals**

Even the most passive therapy animal can misbehave, especially if an elderly person may hug too tight, or hold on too long. Concerns about allergies, and injuries from animals have kept many homes from using live animals.

Robot animals are being produced for children to train and play with, but scientists are working on developing models that can give the elderly and the disabled companionship, with a side benefit being that the robots do not need to be fed or cared for.

A Japanese company, AIST, has developed a state-of-the-art, antibacterial fur-covered, robotic substitute for live animals (Banks, et al., 2008). PARO is a therapeutic robot that is manufactured to look and acts like a baby harp seal for treatment purposes. Using a robot in places where living animals would have handling or logistical problems, allows a form of animal therapy to those clients as well (PARO, 2012).

The therapy robot research suggests that it has the ability to diminish patient stress, inspire interaction between patients and caregivers, generate a positive psychological outcome, improve relaxation and motivation and improve the socialization of patients with each other and with caregivers (Griffin, 2012).

The robot seal has a variety of sensors to provide its therapy services: tactile, light, audition, temp, and position sensors. It can differentiate the environment and people with these sensors. It can distinguish from lightness or darkness. It feels being pet or hit, or being held. PARO can also differentiate which direction a voice comes from. It can even identify a set of key words like its name, greetings, and praise.

The robot can learn to perform in ways that its 'owner' likes best. For instance, if the client pets the robot gently, the robot will remember and try to do that again. On the opposite side, if the client hits the robot, it will try not to do that again. This is especially good in clients with memory loss. By interaction with people, the robot reacts as if it is a living animal. It can move its head, arms and legs, and make sounds; even acting like the client wants it to act. (PARO, 2012).

In a review published in *Gerontology* (Shibata & Wada, 2011), the PARO robot baby harp seal has been credited with reducing loneliness and depression, and prompting more interaction in memory loss patients.

PARO is now available, 2012, for demonstration purposes at the Tomiva koti, Helsinki (Toimiva koti, 2012).

Sony has also produced a similar robot that is being used in elderly homes, called AIBO which stands for **Artificial Intelligence** robot. A study done using this more metallic ro-

bot found that the, “presentation of AIBO resulted in positive outcomes for the severe dementia clients, including increased communication” (Tamura, et al., 2003).

Banks, et al. (2008) conducted a study to compare standard animal assisted therapy with robotic therapy. They used robotic dogs and compared them to the use of living dogs to treat loneliness. They determined that using these types of robot animals reduced the amount of loneliness felt in elderly living in long care facilities and that the elderly became attached to the robots.

### **4.3 How to Use Animals with Elderly**

For this paper, we will assume that you are a facility looking to introduce animal therapy into the organization. This will be a brief summary of how to get started.

There are many organizations that will bring therapy animals to a facility on a regular basis. Some offer these services for free, while others insist on a fee. Google search can help find a solution for area, price, need, etc (Google, 2012). For this section, we will use the information provided by the Delta Society (2012) as they are the most easily accessible, wide ranging and well known animal therapy organization.

#### **4.3.1 Getting Started**

Education is imperative. Educate the staff. Explain about the animal therapy and why it is important. Find out what their hopes, concerns and issues are. Many animal therapy organizations offer training, brochures, videos, even online information to help get all of the staff acquainted with the idea (Delta Society, 2012).

Also to be considered should be the elderly in your care, do they have allergies, fears, phobias? How does their relatives and friends factor into the animal therapy?

Think about the size of the facility. Are there safety issues for wandering animals? What possible hazards can affect the health of the animal? Are there any special insurance re-

quirements needed to have an animal in your facility? Are there any local coding or city zoning restrictions?

Make sure everyone in the facility knows about what resources are available, what has to be done before the animal-handler and animal makes their first visit, what to do in an emergency, etc. Perhaps plan out emergency scenarios, and post written information around the areas where the animals may frequent.

#### **4.3.2 Site Assessment and Policies**

“A site assessment evaluates a facility for the suitability of an animal therapy program.” Of course the facility wants to have a safe and enjoyable program. In order to do this, here are some recommendations made by the Delta Society (2012).

Some of those recommendations involve assessing your site and your staff. Everyone should be involved to get the maximum benefit of the assessment and the animal therapy program. Site assessment can be a preparation instrument to decide whether or not animal therapy is a practicable choice.

The Delta Society's (2012) recommends buying the wide-ranging ‘Standards of Practice in Animal-Assisted Activities and Therapy’. It costs 25 US dollars, but there are other organizations that offer similar brochures, and the internet is a valuable resource for finding much information (Google, 2012). This brochure contains:

...Up-to-date standards of practice for all aspects of involving animals in treatment programs. This is a critical resource for everyone designing or implementing an animal assisted therapy program. Guidance in administrative structure: standards of practice, personnel credentials and vocational profiles, treatment plan development, documentation, sample forms, bibliography. It also includes animal selection, screening, and health requirements; training, and evaluation; assessment; and investigative studies. (Delta Society, 2012)

## 5 RESEARCH RESULTS

In this systematic literature review, the documented effects of animal therapy on those with memory loss disorders will be shared and dissected in the hopes of finding new ways to cope with elderly who have challenging and inappropriate behaviors.

For this section of the thesis, the focus will be on the research question, “What are the documented effects of animal assisted therapy on elderly clients with memory disorders and can it help those elderly with inappropriate behaviors?” This will be divided into two parts, depending on the research results. The results that emerged from the articles used in the study are further discussed below.

In the studies, various measurement tools were used to analyze the results of the animal therapy. Some were created just for the research that was being done; some are available and commonly used, but may have been altered slightly to more specifically support the research. See Table 3.

While numerous studies that are being conducted focus on the results of animal therapy being determined by observation, or rating scales, Kanamori, et al (2001) take it further and create a more scientifically measurable approach. Using a foundation of a scientific cognitive assessment, the consequence of animal assisted therapy on dementia clients was researched. Stress was measured by means of salivary chromogranin A (CgA), a psychosomatic stress indicator. Some standard measurement tools were used as well, such as the Behavioral Pathology of Alzheimer’s Disease the Mini-Mental State Exam, and Nishimura’s Activities of Daily Living. In this study, the purpose was to make clear, repeatable, consistent ways to read the assessments of animal assisted therapy for elderly dementia sufferers. The indication is that combining the assessment methods can demonstrate more reliable, measurable differences in the clients.

There are many levels to animal therapy and the results of those levels can vary tremendously. For the purpose of this paper, we will examine studies that not only research animal therapy and the elderly, and their inappropriate behavior, but also those that deal with the theoretical framework of this paper.



Table 3. Measurement tools and definitions.

<b>Measurement Tool</b>	<b>Definition</b> (all definitions listed in this table are provided by <i>The Medical Dictionary</i> ) (The Medical Dictionary, 2012)
Questionnaire (pre/mid/ post)	“A set of printed or written questions with a choice of answers, devised for the purposes of a survey or statistical study”. Can be specifically made.
Geriatric Depression Scale (GDS)	“A brief depression screening inventory composed of 30 items that require yes or no answers. A score of 11 or above indicates depressed individuals. There is a 15-item short version. Scores of 5 or more may indicate depression.”
Interview (pre/mid/post)	“Discuss formally with somebody for the purpose of an evaluation.”
Multi-Dimensional Support Scale (MDSS)	“Measures respondents’ satisfaction with social support from family and close friends and from health professionals.”
Observation	“The action or process of observing something or someone carefully or in order to gain information.”
Western Aphasia Battery (WAB)	“An instrument for assessing the language functions of adults, able to discern the presence, degree, and type of aphasia.”
Mini-Mental State Examination (MMSE)	“A 30-point questionnaire test that is used to screen for cognitive impairment. It is commonly used in medicine to screen for dementia.”
Self-Perceived Quality-of-Life Questionnaire (SPQL)	“A psychological assessment instrument provides a multi-faceted measurement of health-related and non-health-related aspects of well-being.”
Lexington Attachment to Pets Scale (LAPS)	“A scale for assessing emotional attachment of individuals to their pets.”
Cohen-Mansfield Agitation Inventory CMAI	“To assess the frequency of manifestations of agitated behaviors in elderly persons.”
Activities of Daily Living (ADL)	“An individual’s ability to perform routine activities that people tend to do every day without needing assistance.”
Behavior Pathology in Alzheimer’s Disease Rating Scale (BEHAVE-AD)	“To document behavioral symptoms in patients with Alzheimer’s disease. The scales rates paranoid and delusional ideation; hallucinations; activity disturbances; aggression; diurnal variation; mood; and anxieties and phobias.”
The Nursing Home Behavior Problem Scale	“A 29 item inventory of behavior problems encountered in nursing homes and other chronic care facilities.”
Short Form (SF-36) Health Survey	A 36 item health survey. “Profiles functional health, well-being, psychometrically-based physical, mental health summary measures and a preference-based health utility index.”
UCLA Loneliness Scale	“A 20-item scale designed to measure one’s subjective feelings of loneliness as well as feelings of social isolation.”

## **5.1 Biophilia Theory Research on Animal Therapy and Elderly**

The Biophilia theory (Fromm, 1964) explains that there is a natural bond between humans and other living organisms and many of these researches represent that theory. The researches done show that in the presence of animals there is a positive physiological response which and in general people naturally wish to be in the presence of an animal if given an opportunity.

In this section we will address research that represent this theory using animals in a therapy context with elderly who have memory loss disorders. Some of these researches show that in the presence of animals there is a positive physiological response.

An important function that is often disrupted in clients with memory loss disorders is appetite, and resultant weight loss. Edwards & Beck (2002) researched Alzheimer's clients that ate their meals sitting in front of fish aquariums. They used baseline nutritional data to evaluate the client's weight before and during the trails. They noted that it appeared the clients were fascinated by the fish swimming around the aquarium. Because the clients were watching the fish as they ate, their appetites seemed to increase, they would stay eating longer, and this led to them gaining weight. Edwards and Beck surmised that aquariums were a low cost, low maintenance and low risk animal assisted therapy that can have significant, measurable, beneficial effects.

An extensive systematic literature review conducted by Scheibeck, et al. (2011) summarizes that elderly people benefit from contact with dogs in numerous ways. The goal of the review was to look closely at the relationship people have with animals from a gerontological perspective. As with other studies, the review reflects on the multiple meanings and effects that pets can and do have to the elderly.

A pilot study conducted by Macauley (2006) investigated the consequences and usefulness of animal assisted therapy. Clients that were elderly and had aphasia were given animal therapy in comparison to conventional speech therapy. Using pre-, mid, and post Western Aphasia Battery tests and mid and post questionnaires, the outcome suggested that the participants had more motivation, liked the animal therapy more than the con-

ventional speech therapy, and felt that the mood of the sessions were more relaxed and they felt less stressed.

The study by Guzman (2009) tries to describe the meaning of Petmanship. The goal was to try to get a measurement of how elderly view their pets in relation to how the elderly see their health and self esteem. Data was collected using a three-part instrument, conducting semi structured interviews, and providing doodling activities. The final result was that the elderly's pets have a weighty and optimistic effect on their self esteem and how they measure their health.

To summarize, the Biophilia theory (Fromm, 1964) states that there is a natural connection between humans and animals. The researches done show that in the presence of animals there is a positive physiological response. Edwards and Beck (2002) show the increase of elderly's appetite in the presence of a fish tank, while Scheibeck, et al. (2011) details the many meanings that animals do have to elderly. Macauley (2006) found that elderly clients with Aphasia enjoyed their therapy more with animals than conventional methods, and Guzman (2009) ascertains that animals have a deep and helpful effect on the elderly's self esteem and how they measure their health.

## **5.2 Social Support Theory Research on Animal Therapy with Elderly**

These types of support illicit more of a mental response. The Emotional Support aspect of the Social Support theory can be defined as the offering of caring, understanding, encouragement, empathy, warmth, affection, love, trust, intimacy, concern, or acceptance. (Willis, 1991). It is felt that the 'love' that animals or pets give to the people around them, is a form of emotional support.

The Companionship Support aspect of the Social Support theory can be defined as the kind of support that provides a person a feeling of social inclusion. This can be the presence of friends to join mutual group activities (Uchino, 2004). Not only is it thought that having an animal provides a social outlet for their owners, but the animal itself offers the role of companion.

The Social Support theory (Taylor, 2011) as a person's circle of support can include an animal, and the following researches demonstrate the emotional aspects and companionship aspects are represented.

McColgan & Schofield (2007) facilitated a qualitative study into the relationships that the elderly have with their pets utilizing interviews and observations. Their objective was to find out what impact animals have on emotional and physical well being. They found that elderly who have a pet gain support and companionship; therefore the importance of this should be considered as part of developing a care plan. While the study did their focus on dogs as companion animals, it was suggested that the bond a person has with any animal might be as considerable.

In a reflective essay that focuses on the holistic area of animal therapy, Koppel (2011) focuses on how animals can be great companions for those in various types of care situations. The elderly, ill and dying are offered attention and comfort by animals in a time that people can find awkward. He suggests using animals as companions in care, but states that even stuffed animals will achieve positive reactions. Experiential stories, object relations theory, process theology, and empirical studies are used to develop the theory that soulful spiritual care with elderly can include animals. The conclusion is that healing can come from many directions and in numerous forms.

Banks, et al. (2008) attempted to evaluate variations of treating loneliness in elderly clients using a live dog and a robot dog. They compared the effects of a live dog versus the robot dog AIBO on elderly clients living in a long term care facility. Using the Mini-Mental State Examination, the UCLA Loneliness Scale, and a modified Lexington Attachment to Pets Scale, Banks determined that elderly became attached to the dog and the AIBO robot. The study supports that live dogs and interactive robotic dogs can diminish loneliness in elderly.

A significant study done by Moretti, et al. (2011) focused on using animal therapy on elderly patients with dementia, depression and psychosis. Their objective was to assess the effects of animal therapy on the elderly's moods, cognitive functions, and how they viewed their quality of life. Measurement tools were the Mini-Mental State Examination and Geriatric Depression Scale and a self perceived quality of life questionnaire. The

MMSA and GDS showed improvement and most of the elderly reported an improvement on their view of their quality of life. The results show that elderly with dementia, depression and psychosis, animal therapy is resourceful in improving depressive symptoms and cognitive function.

Studies made to define what owning or being in the presence animals means to elderly seem to be as important. Changing the thought process of keeping domesticated animals as pets to a *relationship* can be significant. This type of relationship is referred to by Guzman (2009) as Petmanship. In his study on these relationships, he explains Petmanship as a type of relationship between animals and people in the context of enjoyment, value and satisfying needs. This relationship concept is described by McCabe (2002) as, “a kind of bond characterized by friendship, affection and companionship”.

In summary, the Emotional Support aspect of the Social Support theory can be defined as the love that animals give to the people around them. The Companionship Support aspect can be defined as a kind of support that gives a person a feeling of social acceptance and that the animal itself can offer the role of companion. McColgan & Schofield (2007) show that elderly can have significant relationships with animals, Koppel (2011) argues elderly are offered attention and comfort by animals and can be a form of healing. Banks, et al. (2008) found that even robot dogs can reduce loneliness in the elderly and Guzman (2009) found an animal is often in the companionship role in the lives of elderly. Moretti (2011) discovered the feelings of improvements on the elderly’s quality of life. These are all positive and significant findings to promote animal therapy.

### **5.3 Effects of Animal Therapy on Elderly**

Increasingly, studies are confirming beneficial effects of animals on humans (Beck & Katcher, 2003). The benefits of involving an animal in a therapy are plentiful in the literature. Mainly the focus is on how the well being of the client is affected (Winefield, et al., 2008), although there are mentions that there could be beneficial aspects of animal assisted therapy for the caregivers (Banks, et al., 2008) and even the animal (SCAS, 2010).

Beck and Katcher (1996) suggested animals, “act as a bridge by which therapists can reach patients who are withdrawn, uncooperative, and uncommunicative.” Numerous researches have resulted from observations such as these.

There is much research that implies that less medication is needed for the elderly (Brodie & Biley, 1999) when using animal assisted therapy. This would benefit the institution financially, the elderly in care physically, and reduce the caregivers workload.

For a long time it has been recognised that animals have positive effects on people with numerous health conditions (Laun, 2003), and the number of hospitals permitting visits by animals is growing (SCAS, 2010). The National Institute for Health and Clinical Excellence, an organisation dedicated to providing health and evidence based guidance, recommends the use of animal assisted therapy (NICE, 2012).

It is suggested that elderly people may react in a more positive manner to physical contact compared to verbal communication (Butts, 2001), and that the act of physical contact has been found to improve health and quality of life (Jorgenson, 1997). Elderly people are often lacking in the amount of physical contact they receive, but having an animal present offers the benefit of touching and can kindle fond memories. Bardill and Hutchinson (1997) surmised that having a pet or animal present can give elderly people an opportunity to have positive physical contact.

Animals for therapy purposes in elderly homes have gained recognition (Stanley-Hermanns & Miller, 2002). There are many researches that demonstrate emotional improvement in bereaved clients after contact with an animal (Akiyama, et al., 1986) and improvements in physical and cardiovascular health (Anderson, et al., 1992).

Psychological improvements in areas such as stress and anxiety (Siegel, 1990), depression (Brodie & Biley, 1999), and aggression (Kanamori, et al., 2001) in the elderly have been tested.

Animals have had an impact on reducing lonesomeness in the elderly population (Fick, 1993). It was recognised that animal owners have less doctor visits compared to non animal owners over a five year longitudinal study (McHarg, et al., 1995), a significant notion to ponder with health care resources being depleted.

Willis (1991) ascertains that elderly can experience multiple losses when they leave their homes and enter a care facility. Not only is it likely they will have an interruption to their social networks, but the factors of ageing play a part in losses as well. Loss of sight or limited vision, hearing loss, mobility issues, perhaps the loss of a partner, their loss of status or role in the community or their family life, and the loss of their homes and possessions, all of these are factors that can contribute to low self esteem and hinder the ability to relate to others.

Understanding Willis' thoughts on these disruptions, Prosser & Staiger (2008) examined the possibility for an animal to progress the well being and health of elderly and to encourage ability for building relationships. Using Pre and post intervention questionnaires, making observations, and using the Geriatric Depression Scale, they observed an increase in social communications among the elderly that were involved. It was noted by caregivers participating that the response level of the elderly had increased during the animal therapy, and that there were active conversations about animals, past and present. Some even had brought old photographs to talk about the past pets. Prosser & Staiger's results compliment allegations in previous studies that having an animal present provides opportunities for building relationships and promoting social interactions.

Not all studies show that owning a pet or having pet attachment adds to the health of elderly. Winefield, et al. (2008) surmise that the effects on elderly's health using an animal is inconclusive. They base this thought on two key elements: there is no standard control group for elderly that meet the same health conditions, and there is not a proper scientific way to measure the emotional connection that someone feels towards their pet. Winefield, et al. states having an animal reflects more on the Attachment Theory.

In their study, they conducted interviews, and evaluated scores by means of the SF-36 Health Survey and a modified version of the Multi-Dimensional Support Scale. Once they calculated for variables, variations of well being and health were not explained by having an animal or being attached to it. Winefield's (2008) studies suggest that, "the health of elderly people is related to their health habits and social supports but not to their ownership of or attachment to, an animal".

When you compare these results to the meaning of theories, especially when you think of the Social Support theory, this can be contradicting. If the health is related to the elderly's health habits and social habits, doesn't that also include an animal companion?

In summary, studies have demonstrated that animals can have an effect of the elderly, especially those with memory loss disorders. Prosser & Staiger (2008) state that having an animal present provide elderly with social stimulation and opportunities to interact with other people while many others support that animals reduce loneliness (Griffin, 2012), reduce medicine use, (Fick, 1993), help with bereavement (Akiyama, et al., 1986), and have many good outcomes. Few studies state any negative results, only inconclusive or no change.

#### **5.4 Effects on Elderly with Inappropriate Behaviors**

Marx, et al., (2008) supplied a range of dog-related stimuli to determine the engagement level on clients with dementia. Clients in residential care homes participated in watching a puppy video, interacting with several real dogs, interacting with the robot dog AIBO, holding a stuffed animal dog, and coloring pictures of dogs with markers. Using ADL and MMSE assessment tools, cognitive functioning was measured in reaction to how they engaged with the activities. The interaction with the real dogs and watching the video of the puppy scored the highest in the assessments. They concluded that care homes should reflect on animal assisted therapy and animal associated stimuli, because they positively connect dementia clients in a positive manner.

A study conducted by Richeson (2003) provides pilot data supporting using animals in a therapy context for rehabilitation in geriatric wards. She suggests animal therapy helps to reduce inappropriate behavior, decrease agitation, and improve social interactions in clients with dementia. Using the Cohen-Mansfield Agitation Inventory, the Mini-Mental State Exam and an Animal-Assisted Therapy Flow Sheet, participants were monitored before and after animal therapy and evaluated. It was remarked that there were noteworthy amounts of less agitation, inappropriate behaviors and the social interactions increased significantly.



There was research conducted by Tanner (2003) using fish tanks. It was more specific to investigate managing agitation associated with sundown syndrome in individuals with memory loss, thereby reducing the need to use medicinal and/or physical restraints. The facility introduced an aquarium, which participants were asked to observe. Data collection was by observation along with a pre and post MMSE, and a pre and post CMAI. The outcome of this research suggests that the use of a specially designed aquarium was not effective with an individual who experienced sundown syndrome.

Many studies have attempted to address the issues of problem behavior in memory loss clients by using animals. McCabe, et al., (2002) performed research intent on establishing consequences of using a therapy animal for inappropriate behavior. Documenting behaviors that were labeled as problem or inappropriate were done using the Nursing Home Behavior Problem Scale. These behaviors included sleep disturbances, aggression, bad tempered, or annoying behavior. Two times were monitored, the morning and evening visits with the therapy dog. Also noted was how often medicine was needed to be administered due to behavior during the times the dog was present, and when it was away. It was concluded that clients exposed to animal therapy during the day exhibited significantly fewer problem behaviors. It was reported that there were no noteworthy changes on the clients exposed to animal therapy during the night. The results indicate that for day time using, a therapy animal present can reduce problem behaviors and bring about a reduction in medication use.

In summary, Marx (2008), Richeson (2003), and McCabe (2002) all found significant improvements on inappropriate behaviors in elderly with the introduction of some animal related stimuli. Only Tanner (2003) found no change with a fish tank.

## **6 ETHICAL CONSIDERATIONS AND ANIMAL THERAPY**

In this section, we will discuss ethical issues we must consider when talking about animal therapy with the elderly. Ethics are a branch of philosophy that addresses moral questions about concepts such as good and evil, right and wrong, justice, virtue, etc (Dictionary.com, 2012).

Ethical considerations to think about are creating an awareness of the ethical values and implications of animal therapy, considering the staff, the elderly and the animals. In dealing with issues related to animals or humans, one must consider the ethical impact of studies done, and also the practice of animal therapy being incorporated.

Sustainability application of animal therapy must also be considered.

## **6.1 Ethical Concerns with Humans**

Ethical issues to consider may include, asking how consent from a person with memory loss or some other memory disorder was attained? In many of the researches, there is no indication how approval was attained for permission to conduct the research. How were the participants protected?

Also to be considered should be individual client's fears, allergies, phobias, diagnosis, and diseases. What are the rules and regulations? How do non-agreeing clients cope? The presence of an animal could be too stimulating for a client who struggles with sensory issues, detracting from the therapeutic process.

No matter how well trained an animal is, it can never be entirely predictable. If a therapy animal happens to scratch a client or knocks the client over, (Chandler, 2005) it can endanger the therapeutic association. Management should consider the potential for liability issues.

Sanitation and the potential for disease must be addressed. Animal inoculations and parasite control, among other things, must be current (Delta Society, 2012) and clients must also be screened for potential allergies or sensitivities (Chandler, 2005).

These are all human ethical considerations to reflect on in the research.

## 6.2 Ethical Concerns with Animals

The participation of animals in a therapy context can be quite challenging. As a therapy animal me, they must cooperate even in environments that are unfamiliar and stressful.

Individual animals vary in their social and behavioral requirements. An aggravated or depressed animal is more prone to not perform the way it is expected. There should be a place provided that the animal can feel safe if feels tired or stressed, and can be alone. (Fejsáková, et al., 2009).

The whole animal therapy program can suffer if the animal suffers. Since stress affects the whole being, even animals, adequate care must be taken to ensure that the potential for problems and negative issues are resolved early on. (PALS, 2012). Open communication is essential for the health, well being, and performance of the therapy animal.

While there are many studies done researching the effect of animals on elderly, there is very little research on how the therapy and being a therapy animal actually affects the animal. Because they are subject to various moods and stresses, but cannot speak for themselves, there is no way to really know how the environment influences the health and mental demeanor of the animal. Some animals can develop diseases or illnesses from stress. A nervous disposition can affect the immune system or create nervous behavior, from constant exposure to stress or negative feelings. Also to be considered is that a weaker immune system can be subject to physical illnesses due to the germs they are exposed to. (Hatch, 2007).

Therapy animals may have to tolerate changing owners and clients with various characteristics, and this can be quite stressful. Animals used in therapy are often placed in situations where they have no control over their social choices. (Delta Society, 2012).

Being part of an animal therapy program, the workers must have knowledge of using the therapy and how to deal with the animal. Long term animals may work best, as the workers can get to know the animal's behavior and body language (SCAS, 2010), looking for signs of stress, discomfort, fear and fatigue. The facility offering animal therapy should also help teach the clients how to handle the animal properly.

As discussed in relation to dolphin assisted therapy, holding a non-domesticated animal captive to serve the purposes of a human wants can be controversial, and the facility may need to recognize that all workers or clients may not be supportive of the animal therapy concept.

Many organizations help support safe and ethical support of animal therapy and are available as a resource if needed. The Delta Society (2012), PALS (2012), SCAS (2010), Sathy (2008) and The Chimo Project (2011) are just a few well known organizations that offer advice, training, support and information.

### **6.3 Sustainability**

A few issues we should consider are dealing with sustainability. Sustainability has many definitions, but for the purpose of this paper, we will say that when an activity is sustainable, it can be performed over and over without harmful environmental effects or high costs to those involved (Dictionary.com, 2012).

In this section, we will discuss how the uses of animals in therapy are a sustainable resource and consequentially reduce the use of medications that could result in environmental and financial gains.

Therapy animals are easily sustainable. Animals that live on the ward, such as the Kustaankartano cat, Reemu, require little maintenance, food costs are low, and can live for many years with appropriate care (SCAS, 2010).

Those that are cared for by animal therapy professionals are utilized in a 'job' type manner, and in general, are expected to produce results for a long time to come. They are given proper nutrition, health checkups and care to be able to continue 'working' (PALS, 2012).

Part of wishing to use animals in therapy purposes is to reduce the use of chemical restraints or medicines that are used to alleviate inappropriate behavior.

A study by the Environmental Chemistry Branch (2010) has found that, “antibiotics, anticonvulsants, mood stabilizers, sex hormones, anti-anxiety drugs, acetaminophen and ibuprofen excreted through urine end up in the water supply”.

Of course, the sewage is treated prior to being redistributed into open waters, but treatment does not remove all pharmaceuticals. This affects the marine life. Fish can develop opposite sex behaviors that disturb spawning, and antibiotics in the environment may accelerate the increase of bacterial resistance (Environmental Chemistry Branch, 2010).

Elderly people take more prescription and nonprescription medications than any other age group. The average 75-year-old takes five prescription medications. Elderly people with various diseases can end up taking as many as 12 different prescriptions (NIA, 2012).

These medication residues left in urine are being dumped into drinking water, and the water used by aquatic life. Offering therapies that promote lessening the use of medications is a good option for this environmental concern.

Financial sustainability is considered when we examine the fact that drug use by the elderly is expensive. A US study states that, on average, people over 65 have 28.5 new prescriptions and refills per year at a cost of \$42.30 per drug (NIA, 2012). That amounts to over 1200 US dollars per year, per person.

Finding alternative ways to reduce medication usage can free up financial resources for other areas of care.

## **7 DISCUSSION**

In the beginning of this thesis, research questions to consider were: looking to define animal assisted therapy and how it can be used in an elderly setting, and what are the documented effects of animal assisted therapy on elderly clients with memory disorders and can it help those elderly with inappropriate behaviors?

It was hypothesized that visits by animals to elderly care homes could bring numerous benefits to the elderly, such as being more relaxed, being less lethargic, have diminished agitation and be less aggressive and have need of fewer medications. Since it is difficult to accurately measure feelings, especially those in clients with memory disorders, it was thought that much of the evidence is anecdotal.

Those hypotheses were correct in a loose sense, anecdotal evidence is difficult to measure. While most of the research suggests the benefits reach a wide spectrum of positive aspects, some suggest there was no noticeable changes, while one research tried a new, more scientific method of measuring stress levels with a salvia test.

The aim of this paper was to create a relevant summary of literature regarding animal therapy and elderly people with memory loss disorders, and in turn answer the research questions.

Primary objectives beyond the research questions were to introduce the use of animal therapy as an alternative intervention for clients, while looking at the history, the potential benefits and risks, types of animals used, ethical implications and the future of animal assisted therapy.

Possible inadequacies discovered was the limited available research, conflicting methodology and justification, varying belief systems about the value of animals, the wide variety of the definitions, an inconsistency amongst professionals and practitioners, and varying degrees of the level of how animals or elderly were involved.

Curative activities such as animal assisted therapy are suggested to be successful psychosocial avenues for memory loss disorders. But the issue remains that the studies done into animal therapy effects are mostly based on the subjective responses of staff and clients.

In some studies, quantitative research indicates a diminishment of inappropriate behaviors when animals are in use, but skeptics claim it could be more due to the break of the daily routine. Further studies should examine using a more scientific approach in the methodology.

The majority of proof shows that animal therapy has an important influence on the psychosocial well being of elderly living in a care home. Expression of emotion, voluntarily participating in meaningful and stimulating activities, developing concern for others, increased appetite, reduced anxiety, lessening of inappropriate behavior, happiness level increased, and loneliness and isolation feelings decreased.

Also to be considered is the potential downsides to animal therapy. Clients may not be interested in animal therapy; they could be afraid of the animal, or even allergic. Medical conditions should be considered, and if they might be aggravated by having an animal around. In addition, the facility providing animal therapy should note whether staff or residents even like animals and if they are accepting of their presence.

It is very important to make sure that therapy animals are suitable for the environment, and the job at hand. A screening process and risk assessment should be performed to make sure all involved are protected.

## **7.1 Recommendation for Further Research**

According to research, inappropriate behaviors are often burdensome for caregivers and even the family or relatives of a client. Therefore, it will be good to continue investigate how animal therapy can help to reduce stress for both caregivers and also improve quality of life and the care for clients.

Further research should consider if the positive effects of animal therapy are retained over time. Future studies should consider that all animals have a variety of demeanors and differences. Each animal will have different levels of suitability. Depending on the context in which the animal is used, depends on the staff, clients and diagnoses, and how the animal will react in each situation.

Putting together a team of interdisciplinary and multi-professionals that are knowledgeable about the topic in several areas; perhaps a combination of caregivers, animal professionals, mental health practitioners, animal advocate organizations and researchers, would offer various perspectives and goals for research.

The future studies should consider developing new ways to measure feelings, especially those of being frightened or happy, so that the results can be more scientific and repeatable.

## **7.2 Conclusion**

This paper created a summary of literature regarding animal therapy and elderly people with memory loss disorders. This research contributes greatly to the well being of elderly people with memory loss disorders and their caregivers.

This review has been able to find answers to the research questions that were set as the basis for the study. The author believes that this study will contribute in the understanding of memory loss disorders, inappropriate behavior, and introducing alternative methods to cope.

By reviewing the literature, it was discovered that while there is much research regarding animal therapy, most of it follows up with the recommendation that there be further research to connect results with animal therapy. (Prosser & Staiger, 2008).

Animal assisted therapy appears to offer many positive outcomes for elderly with memory loss disorders, and possibly the reduction of inappropriate behaviors. It is also possible that animal assisted therapy has many positive consequences for the organization, including the reduction of medicine prompting financial gain, ease of burden on caregivers, and possible positive outcomes for the environment.

Animal assisted therapies could be best described as a complimentary process to add to a program. While they are still struggling to show their value, most studies effectively demonstrate, no matter the method, animal assisted therapy supports the Social Support theory on an emotional and companionship level.



## WORKS CITED

AHA, 2010. *American Hippotherapy Association*. [Online]

Available at: [www.americanhippotherapyassociation.org](http://www.americanhippotherapyassociation.org)

[Accessed 28 February 2012].

Akiyama, H., Holtzman, J. & Britz, W., 1986. Pet ownership and health status during bereavement. *Omega*, 21(17), pp. 187-193.

Allderidge, P., 1991. A cat, surpassing in beauty, and other therapeutic animals. *Psychiatric Bulletin*, pp. 15, 759-762.

Alzheimer's Association, 2012. *Alzheimer's Association*. [Online]

Available at: [www.alz.org/alzheimers\\_disease\\_what\\_is\\_alzheimers.asp](http://www.alz.org/alzheimers_disease_what_is_alzheimers.asp)

[Accessed 9 January 2012].

American Psychiatric Association, 2006. Practice Guideline for the Treatment of Patients With Alzheimer's Disease and Other Dementias of Late Life. In: *American Psychiatric Association Practice Guidelines for the Treatment of Psychiatric Disorders: Compendium 2006*. Arlington: American Psychiatric Association, pp. 105-168.

Anderson, W., Reid, C. & Jennings, G., 1992. Pet ownership and risk factors for cardiovascular disease. *Medical Journal of Australia*, Issue 157, pp. 298-301.

Antonioli, C. & Reveley, M. A., 2005. Randomised controlled trial of animal-facilitated therapy with dolphins in the treatment of depression. *British Medical Journal*, 26(331), pp. 132-136.

Arcada, 2011. *Arcada University of Applied Sciences*. [Online]

Available at: <http://studieguide.arcada.fi/en/study-arcada/degree-thesis/evaluation-criteria-final-thesis-project>

[Accessed 1 September 2011].

Aveyard, H., 2010. *Doing a Literature Review in Health and Social Care: A Practical Guide*. 2nd ed. London: Open University Press.

Banks, M., Willoughby, L. & W.A.Banks, 2008. Animal-assisted therapy and loneliness in nursing homes: use of robotic versus living dogs. *Journal of the American Medical Directors Association*, 9(3), pp. 173-177.

Bardill, N. & Hutchinson, S., 1997. Animal-assisted therapy with hospitalized adolescents. *Journal of Child and Adolescent Psychiatric Nursing*, 10(1), pp. 17-24.

- Beck, A. & Katcher, A., 1996. *Between Pets and People: the Importance of Animal Companionship*. 2nd ed. Indiana: Purdue University Press.
- Beck, A. M. & Katcher, A. H., 2003. Future Directions in Human-Animal Bond Research. *American Behavioral Scientist*, 47(1), pp. 79-93.
- Berget, B., Ekeberg, Ø. & Braastad, B. O., 2008. Animal-assisted therapy with farm animals for persons with psychiatric disorders: effects on self-efficacy, coping ability and quality of life, a randomized controlled trial. *Clinical Practice and Epidemiology in Mental Health*, 4(9).
- Biophile Magazine, 2012. *Biophile*. [Online]  
Available at: [www.biophile.co.za](http://www.biophile.co.za)  
[Accessed 10 April 2012].
- Bridges, D., Smeyers, P. & Smith, R., 2009. Personal Narratives and Policy. In: J. o. P. o. Education, ed. *Evidence-based education policy: what evidence? what basis? whose policy?*. United Kingdom: Wiley-Blackwell, pp. 115-119.
- Brodie, S. J. & Biley, F. C., 1999. An exploration of the potential benefits of pet-facilitated therapy. *Journal of Clinical Nursing*, 8(4), pp. 329-337.
- Burgon, H., 2003. Case studies of adults receiving horse-riding therapy. *Anthrozoos*, Issue 16, p. 263 – 276.
- Butts, J. B., 2001. Outcomes of comfort touch in institutionalized elderly female residents. *Geriatric Nursing*, 22(4), p. 180–184.
- Chandler, C. K., 2005. *Animal Assisted Therapy in Counseling*. 1st ed. New York: Routledge.
- College of Health and Urban Affairs, 2012. *Betsy A. Smith, Associate Professor*. [Online]  
Available at: [www2.fiu.edu/~socialwk/smithb.htm](http://www2.fiu.edu/~socialwk/smithb.htm)  
[Accessed 23 June 2012].
- Coren, S., 1997. *What Do Dogs Know?*. New York: Free Press.
- Delta Society, 2012. *Delta Society*. [Online]  
Available at: [www.deltasociety.org](http://www.deltasociety.org)  
[Accessed 23 January 2012].
- Dictionary.com, 2012. *Dictionary.com*. [Online]  
Available at: [www.dictionary.com](http://www.dictionary.com)  
[Accessed 21 April 2012].

- DSM-IV, 2000. Delirium, Dementia, and Amnestic and Other Cognitive Disorders. In: A. P. Association, ed. *Diagnostic and Statistical Manual of Mental Disorders IV*. Washington, DC: American Psychiatric Association, pp. 147-171.
- Edwards, N. E. & Beck, A. M., 2002. Animal-Assisted Therapy and Nutrition in Alzheimer's Disease. *Western Journal of Nursing Research*, 24(6), pp. 697-712.
- Elo, S. & Kyngas, H., 2008. The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), pp. 107-115.
- Environmental Chemistry Branch, 2010. Pharmaceutical Ingredients in Drinking Water: Overview of Occurrence and Significance of Human Exposure. In: C. G. Daughton, ed. *Contaminants of Emerging Concern in the Environment: Ecological and Human Health Considerations*. Las Vegas: National Exposure Research Laboratory, U.S. Environmental Protection Agency, pp. 9-68.
- Fejsáková, M. et al., 2009. Ethical Aspects Related to Involvement of Animals in Animal Assisted Therapy. *Folia Veterinaria*, 1(53), pp. 62-64.
- Fick, K. M., 1993. The influence of an animal on social interactions of nursing home residents in a group setting. *American Journal of Occupational Therapy*, Issue 47, pp. 529-534.
- Fine, A., 2006. *Handbook on Animal-Assisted Therapy: Theoretical Foundations and Guidelines for Practice*. San Diego, CA: Elsevier.
- Flom, B. L., 2005. Counseling with pocket pets. *Professional School Counseling*, 8(1), pp. 469-471.
- Fromm, E., 1964. *The Heart of Man: Its Genius for Good and Evil*. New York: Harper and Row.
- Google, 2012. *Google Search*. [Online]  
Available at: [www.google.com](http://www.google.com)  
[Accessed 26 April 2012].
- Griffin, R., 2012. Giving Purpose to the Way People Spend Their Day. In: *Changing the Culture for Dementia Care*. s.l.:PESI Healthcare, pp. 65-72.
- Gurland, B. J. & Cross, P. S., 1982. Epidemiology of psychopathology in old age: Some implications for clinical services. *Psychiatric Clinics of North America*, 5(1), pp. 11-26.

- Guzman, A. B. d., 2009. Petmanship: Understanding Elderly Filipinos' Self-Perceived Health and Self-Esteem Captured from their Lived Experiences with Pet Companions. *Educational Gerontology*, 35(11), pp. 963-989.
- Hatch, A., 2007. The View from All Fours: A Look at an Animal-Assisted Activity Program from the Animals' Perspective. *Anthrozoös*, 20(1), pp. 37-50.
- Hertzen, M. V. & Stolt, K., 2009. *Thesis Guide*. [Online]  
Available at: [http://studieguide.arcada.fi/en/webfm\\_send/584](http://studieguide.arcada.fi/en/webfm_send/584)  
[Accessed 1 September 2011].
- Johnson, R. A., 2003. Human-animal interaction and wellness. *American Behavioral Scientist*, 47(1), pp. 5-102.
- Jorgenson, J., 1997. Therapeutic use of companion animals in health care. *Journal of Nursing Scholarship*, 29(3), pp. 249-254.
- Kanamori, M. et al., 2001. A day care program and evaluation of animal-assisted therapy (AAT) for the elderly with senile dementia. *American Journal of Alzheimer's Disease and Other Dementias*, 16(4).
- King, L., 2007. *Animal-Assisted Therapy: A Guide for Professional Counselors, School Counselors, Social Workers, and Educators*. 1st ed. Bloomington: Authorhouse.
- Koppel, M. S., 2011. Companions in Presence: Animal Assistants and Eldercare. *Pastoral Psychology*, 60(1), pp. 107-115.
- Krippendorff, K. H., 2003. *Content Analysis: An Introduction to its Methodology*. 2nd ed. Thousand Oaks: Sage Publications.
- Laun, L., 2003. Benefits of Pet Therapy in Dementia. *Home Health Care Nurse*, 1(21), pp. 49-52.
- Livestrong, 2012. *Equine Therapy and the Elderly*. [Online]  
Available at: [www.livestrong.com/article/366910-equine-therapy-the-elderly/](http://www.livestrong.com/article/366910-equine-therapy-the-elderly/)  
[Accessed 2 March 2012].
- Lukina, L., 2010. *Dolphin Assisted Therapy*. [Online]  
Available at: [www.dolphinassistedtherapy.com](http://www.dolphinassistedtherapy.com)  
[Accessed 26 April 2012].

- Macauley, B. L., 2006. Animal-assisted therapy for persons with aphasia: A pilot study. *Journal of Rehabilitation Research & Development*, 43(3), p. 357–366.
- Marx, M. S. et al., 2008. The Impact of Different Dog-related Stimuli on Engagement of Persons With Dementia. *American Journal of Alzheimer's Disease and Other Dementias* , 25(1), pp. 37-45.
- McCabe, B. W., Baun, M. M., Speich, D. & Agrawal, S., 2002. Resident Dog in the Alzheimer's Special Care Unit. *Western Journal of Nursing Research*, 24(6), pp. 684-696.
- McColgan, G. & Schofield, I., 2007. The importance of companion animal relationships in the lives of older people. *Nursing Older People*, 19(1).
- McHarg, M., Baldock, C., Heady, B. & Robinson, A., 1995. *National people and pets survey: Health benefits*, Sydney: Urban Animal Management Coalition.
- Moretti, F. et al., 2011. Pet therapy in elderly patients with mental illness. *Psychogeriatrics : the official journal of the Japanese Psychogeriatric Society*, 11(2), pp. 125-129.
- Motomura, N., Takayoshi, Y. & Ohyama, H., 2004. Animal-assisted Therapy for People with Dementia. *Psychogeriatrics* , 4(1), pp. 40-42.
- NIA, 2012. *National Institute on Aging*. [Online]  
Available at: [www.nia.nih.gov/alzheimers](http://www.nia.nih.gov/alzheimers)  
[Accessed 9 January 2012].
- NICE, 2012. *National Institute for Health and Clinical Excellence*. [Online]  
Available at: <http://publications.nice.org.uk/dementia-cg42/guidance#interventions-for-comorbid-emotional-disorders-in-people-with-dementia>  
[Accessed 9 March 2012].
- Nightingale, F., 1859. *Notes on Nursing: What it is and What it is Not*. Glasgow & London: Blackie & Son.
- NIH - National Institute of Health, 2012. *Medline Plus Encyclopedia*. [Online]  
Available at: [www.nlm.nih.gov/medlineplus/ency/article/003257.htm](http://www.nlm.nih.gov/medlineplus/ency/article/003257.htm)  
[Accessed 26 April 2012].
- NIH, National Institute of Health, 1987. *The health benefits of pets. Workshop summary*. Maryland, National Institutes of Health.

PALS, 2012. *The Pet Access League Society*. [Online]

Available at: [www.palspets.com](http://www.palspets.com)

[Accessed 1 March 2012].

PARO, 2012. *PARO Therapeutic Robot*. [Online]

Available at: [www.parorobots.com](http://www.parorobots.com)

[Accessed 2 February 2012].

Prosser, L. & Staiger, P., 2008. Older people's relationships with companion animals: a pilot study. *Nursing Older People*, 20(3), pp. 29-32.

Richeson, N. E., 2003. Effects of animal-assisted therapy on agitated behaviors and social interactions of older adults with dementia. *American Journal of Alzheimer's Disease and other Dementias*, 18(6), pp. 353-358.

Riddle, D. R., 2007. *Brain Aging: Models, Methods, and Mechanisms*. 1st ed. Boca Raton: CRC Press.

Salerno, E., 2012. *Current Animal therapy at Kustaankartano* [Interview] (26 March 2012).

Sathy, 2008. *Sathy*. [Online]

Available at: [www.sathy.fi](http://www.sathy.fi)

[Accessed 17 January 2012].

SCAS, 2010. *Society for Companion Animal Studies*. [Online]

Available at: [www.scas.org.uk/1908/pets-and-older-people.html](http://www.scas.org.uk/1908/pets-and-older-people.html)

[Accessed 9 March 2012].

Scheibeck, R., Pallauf, M., Stellwag, C. & Seeberger, B., 2011. Elderly people in many respects benefit from interaction with dogs. *European Journal of Medical Research*, 16(12), pp. 557-563.

Shibata, T. & Wada, K., 2011. Robot Therapy: A New Approach for Mental Healthcare of the Elderly – A Mini-Review. *Gerontology*, 57(1), p. 378–386.

Siegel, J., 1990. Stressful Life Events and Use of Physician Services Among the Elderly: The Moderating Role of Pet Ownership. *Journal of Personality and Social Psychology*, 58(6), pp. 1081-1086.

Stanley-Hermanns, M. & Miller, J., 2002. Animal-Assisted Therapy. *American Journal of Nursing*, 102(10), pp. 69-76.

- Sweet Dream Therapy Farm, 2009. *Sweet Dream Therapy Farm*. [Online]  
Available at: <http://sweetdreamtherapyfarm.webs.com/animalassistedtherapy.htm>  
[Accessed 20 January 2012].
- Tamura, T. et al., 2003. Is an Entertainment Robot Useful in the Care of Elderly People With Severe Dementia?. *Journal of Gerontology: Medical Sciences*, 59(1), pp. 83-85.
- Tanner, K. L., 2003. Management of Agitation in Individuals with Dementia: an Animal-assisted Therapy Approach. *Psychology Dissertations*, Volume 136.
- Taylor, S., 2011. Social Support: A Review. In: M. Friedman, ed. *The Handbook of Health Psychology*. New York: Oxford University Press, p. 189–214.
- Tennant, D., 2009. *The Virginian Pilot*. [Online]  
Available at: <http://hamptonroads.com/2009/12/tiny-horse-brings-big-joy-elderly>  
[Accessed 1 April 2012].
- The Chimo Project, 2011. *The Chimo Project*. [Online]  
Available at: [www.chimoproject.ca](http://www.chimoproject.ca)  
[Accessed 3 March 2012].
- The Eden Alternative, 2009. *The Eden Alternative*. [Online]  
Available at: [www.edenalt.org/about-the-eden-alternative](http://www.edenalt.org/about-the-eden-alternative)  
[Accessed 7 March 2012].
- The Medical Dictionary, 2012. *The Medical Dictionary*. [Online]  
Available at: <http://medical-dictionary.thefreedictionary.com/>  
[Accessed 1 June 2012].
- Toigo, T., Leal, J., Pinto, E. C. & Nunes, S., 2008. The use of hippotherapy as therapeutic resource to improve the static balance in elderly individuals. *Brazilian Revue of Geriatrics and Gerontology*, 11(3), pp. 391-403.
- Toimiva koti, 2012. *Toimiva koti (The Functional Home)*. [Online]  
Available at: <http://www.toimivakoti.fi/>  
[Accessed 15 March 2012].
- Tuke, S., 1813. *Description of the Retreat: An Institution Near York for Insane Persons of the Society of Friends*. York UK: W Alexander.
- Uchino, B., 2004. *Social Support and Physical Health: Understanding the Health Consequences of Relationships*. New Haven: Yale University Press.

UNC, 2010. *The Writing Center - Literature Reviews*. [Online]

Available at: [www.writingcenter.unc.edu/resources/handouts-demos/specific-writing-assignments/literature-reviews](http://www.writingcenter.unc.edu/resources/handouts-demos/specific-writing-assignments/literature-reviews)

[Accessed 23 February 2012].

Willis, T., 1991. Social Support and Interpersonal Relationships. *Prosocial Behavior, Review of Personality and Social Psychology*, Volume 12, pp. 265-289.

Wilson, E. O., 1984. *Biophilia: The Human Bond with Other Species*. 12 ed. s.l.:Harvard University Press.

Winefield, H. R., Black, A. & Chur-Hansen, A., 2008. Health Effects of Ownership of and Attachment to Companion Animals in an Older Population. *International Journal of Behavioral Medicine*, 15(4), pp. 303-310.



# Appendix

## Appendix 1/1(3)

Table 4. List of articles used in the literature review.

Author Date	Title	Objectives	Assessment Tools	Results
Michael S. Koppel 2010	Companions in Presence: Animal Assistants and Eldercare	The paper argues that animals can be helpful companions in care with elderly adults.	Experiential stories, object relations theory, process theology, and empirical studies.	Suggests that soulful spiritual care with elderly people can beneficially include animal subjects and that healing can come from many directions and in multiple forms.
Allan B. de Guzman 2009	Petmanship: Understanding Elderly Filipinos' Self-perceived Health and Self-esteem Captured from their Lived Experiences with Pet Companions	Purports to capture the essence of the lived experiences of Filipino elderly with their pet companions in relation to their self-perceived health and self-esteem.	A three-part instrument was made by the researchers to gather data, semi structured interviews, and doodling activities.	Pets have a profound and positive effect on the Filipino elderly's self-esteem and self-perceived health.
Lauren Prosser, Petra Staiger 2008	Older people's relationships with companion animals: a pilot study	Explored the potential for a visiting companion animal program to improve the health and wellbeing of residents and to promote their capacity for building relationships.	Pre-intervention questionnaires, observations, Geriatric Depression Scale, post intervention questionnaires.	Results back assertions in the literature that companion animals foster relationships by giving people opportunities to interact with others.
Helen R. Winefield, Anne Black, Anna Chur-Hansen 2008	Health Effects of Ownership of and Attachment to Companion Animals in an Older Population	Develop a measure of pet attachment that reflects psychologists' use of the attachment concept, and to see if pet ownership or attachment added to the health variance explained by known predictors.	(Winefield, et al., 2008) Interview, a modified MMDS and SF-36 Health Survey. Multiple regressions were then conducted.	The pet attachment measure showed good internal reliability. After controlling for other variables, neither pet ownership nor pet attachment added significantly to explained variance in health and wellbeing.
Gillian McColgan, Irene Schofield 2007	The importance of companion animal relationships in the lives of older people	To find how animals can improve and help a person's emotional and physical well-being. The aim is to illustrate the significance that companion animals might have for some older people.	Qualitative and consisted of conversational interviews and observations.	Support and companionship was gained and therefore the importance of companion animals needs to be considered as part of individual care planning.
R. Scheibeck; M. Pallauf; C. Stellwag; B.	Elderly people in many respects benefit from interac-	To examine the human-animal relationship – and, in particular, the	Systematic literature research, data collection according to	The multiple meanings that pets (in particular dogs) can

Seeberger 2011	tion with dogs	human-dog relationship – from a gerontological perspective.	grounded theory, ethnographic interview, and ethnographic field research.	and do have to the elderly.
Beth L. MaCauley 2006	Animal-assisted therapy for persons with aphasia: A pilot study	This study explored the effects and effectiveness of animal assisted therapy for persons with aphasia.	Pre-, mid, and post Western Aphasia Battery, mid and post questionnaire.	The participants were more motivated, enjoyed the therapy sessions more, and felt that the atmosphere of the sessions was lighter and less stressed during AAT compared with traditional therapy.
F. Moretti, D. D. De Ronchi, V. Bernabei, L. Marchetti, B. Ferrari, C. Forlani, F. Negretti, C. Sacchetti, A.R. Atti 2011	Pet therapy in elderly patients with mental illness	To evaluate the effects of pet therapy on cognitive function, mood and perceived quality of life on elderly inpatients affected by dementia, depression and psychosis.	MMSE and GDS with a self-perceived quality-of-life questionnaire, before and after a pet therapy intervention that lasted 6 weeks.	Pet therapy is efficient in improving depressive symptoms and cognitive function in residents of long-term care facilities with mental illness.
M.R. Banks; L.M. Willoughby; W.A.Banks 2008	Animal-assisted therapy and loneliness in nursing homes: use of robotic versus living dogs	To compare the ability of a living dog and a robotic dog to treat loneliness in elderly patients living in a long term care facility LTCF.	A modified Lexington Attachment to Pets Scale (MLAPS), MMSE, and UCLA Loneliness Scale.	Interactive robotic dogs can reduce loneliness in residents of LTCF and that residents become attached to these robots.
Nancy E. Richeson 2003	Effects of animal-assisted therapy on agitated behaviors and social interactions of older adults with dementia	The effects of a therapeutic recreation intervention using animal assisted therapy on the agitated behaviors and social interactions of older adults with dementia.	Cohen-Mansfield Agitation Inventory, the MMSE and the Animal-Assisted Therapy Flow Sheet.	Significant decreases in agitated behaviors and a statistically significant increase in social interaction pretest to post-test.
Kanamori, Masao; Suzuki, Mizue; Yamamoto, Kiyomi; Kanda, Masahiro; Matsui, Yoshimi; Kojima, Emi; Fukawa, Hirono; Sugita, Tomomi; Oshiro, Hajime 2001	A day care program and evaluation of animal-assisted therapy (AAT) for the elderly with senile dementia	A survey to clarify the evaluation methods of animal-assisted therapy for the elderly with senile dementia in an adult day care center.	MMSE, Nishimura's Activities of Daily Living (N-ADL), behavioral pathology of Alzheimer's disease (Behave-AD), and the evaluation of salivary CgA.	Average MMSE score 11.43 and after 12.29. Average N-ADL score was 28.43 and after 29.57. Average Behave-AD was 11.14, and after 7.29. The evaluation of salivary CgA, showed a decreasing tendency in the AAT group.
Nancy E. Edwards, Alan M. Beck 2002	Animal-Assisted Therapy and Nutrition in Alzheimer's Disease	Examined the influence of animal-assisted therapy, specifically fish aquariums, on nutritional intake in individuals with Alzheimer's disease.	Baseline nutritional data were obtained followed by a 2-week treatment period when the aquariums were introduced. The treatment data were collected daily for 2	Nutritional intake increased significantly when the aquariums were introduced and continued to increase during the 6-week weekly follow-up.

			weeks then weekly for 6 weeks.	Weight increased significantly over the 16-week period.
Marcia S. Marx, Jiska Cohen-Mansfield, Natalie G. Regier, Maha Dakheel-Ali, Ashok Srihari and Khin Thein 2008	The Impact of Different Dog-related Stimuli on Engagement of Persons With Dementia	To provide further empirical evaluation of the effectiveness of animal-assisted therapy in nursing home residents with dementia.	Activities of daily living performance was assessed via the minimum data set and cognitive functioning assessed using the MMSE, and observation.	Highest mean engagement duration was found for the puppy video, followed by the real dog and lowest was for the dog-coloring activity.
Barbara W. McCabe; Mara M. Baun; Denise Speich; Sangeeta Agrawal  2002	Resident Dog in the Alzheimer's Special Care Unit	The purpose of this study was to determine the effect over time of a resident dog on problem behaviors of persons with Alzheimer's in a Special Care Unit.	A within-participants repeated-measures design was used for this study. The Nursing Home Behavior Problem Scale was used to document behaviors (on days and evenings) 1 week before and 4 weeks after placement of a dog.	Participants on the day shift exhibited significantly fewer problem behaviors across the 4 weeks of the study. No significant change in behaviors occurred on the evening shift.
Karen L. Tanner 2003	Management of Agitation in Individuals with Dementia: an Animal-assisted Therapy Approach	This study was designed to investigate whether or not an animal assisted therapy approach would be effective in managing agitation associated with sundown syndrome in individuals with dementia, thereby reducing the need to use chemical and/or physical restraints.	The introduction of an aquarium, which participants were asked to observe. Data collection by observation for six weeks, along with a pre and post MMSE, and a pre and post CMAI.	The results of this study demonstrated that the use of a specially designed aquarium was not effective with an individual who experienced fluctuating delirium superimposed on dementia.