

# A PHYSIOLOGICAL BASIS FOR ANIMAL-FACILITATED PSYCHOTHERAPY

## DECLARATION

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## DECLARATION

I herewith declare that the thesis submitted for the degree Philosophiae Doctor at the University of Pretoria has not previously been submitted for a degree at another University and that it is my own work.



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J S J Odendaal



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## ABSTRACT

Since Boris Levinson published his pioneering studies on animal-facilitated psychotherapy in the sixties, human health professions had limited interest in this field. A particular problem in animal-facilitated psychotherapy is a lack of a theoretical foundation, which can provide a rationale for such therapy. The aims of this study were two-fold: firstly, to integrate existing theories on positive human-human and human-animal interaction; and secondly, to find common physiological support for such a theoretical foundation.

By using an elective approach, positive interaction (attention needs) was valued in 16 personology theories as an integral part of the psychological, emotional, social and cultural needs of all individuals. Attention was indicated as a basic need and that many of the therapeutic advantages claimed from human-animal interaction, are actually based on such a need. It was further indicated that positive interaction between man and animal is reciprocal and this mutual effect can contribute to the success of the therapy. The term used to describe this basic need of positive interaction is *attentionis egens*. A Latin term was chosen to avoid confusion with term attention-seeking behaviour, which is often associated with negative or problem behaviour.

A physiological framework was used to support the theoretical foundation. This was based on known studies related to human-human and animal-animal affiliation, providing measurable parameters for positive human-animal interaction. The method was to take baseline values before and measurements after positive interaction with a dog. Parameters were an anxiety questionnaire, blood pressure, phenylethylamine, norepinephrine, dopamine, endorphins, oxytocin, prolactin and cortisol. The indication to collect blood for chemical analyses was a decrease in blood pressure over a maximum period of 30 minutes of positive interaction. Participants were divided into two groups: the experimental group interacted with their own dogs and the control group with unfamiliar dogs. The effect of interacting with dogs was also compared to the effect of quiet book-reading with the same participants.

The results supported the mutual physiological effect in human and dogs as well as the theoretical foundation for animal-facilitated psychotherapy. Such physiological parameters paved the way for an encompassing theory on positive interaction behaviour and thus provided a rationale for animals in therapy, particularly where basic attention needs are to be fulfilled. The *attentionis egens* theory proved to be rather accommodating than opposing other positive interaction theories.

The main results were:

- a significant decrease in blood pressure (5-24 minutes) is a valid indicator of biochemical changes associated with positive interaction;
- the experimental group (ie people with their own dogs), had significant higher plasma levels of oxytocin and prolactin, indicating a long term bond;
- both species had significant changes of  $\beta$ -phenylethylamine,  $\beta$ -endorphin, dopamine, oxytocin and prolactin, indicating that the physiological response during positive human-dog interaction is reciprocal;
- there were similarities between an anxiety state questionnaire (feeling) and normal mean arterial blood pressure of humans, ie no significant anxiety was present;
- positive interaction with dogs can equal, and in some instances improve on the effect of an quiet, calm intervention such as book-reading;
- a neurochemical profile for positive human-dog interaction should include at least  $\beta$ -phenylethylamine, dopamine and oxytocin; and
- norepinephrine decreased, probably as a reaction to the intravenous blood collection and cortisol decreased significantly in humans and the control dog group. Dogs with their owners, were more excited about the new experience.

With regard to the application of this knowledge, animals in therapy could be described in a similar format used for medicinal therapies. It is further recommended that:

- animal-facilitated psychotherapy should become a commonly accepted approach in psychiatry and become part of the formal curricula for psychiatrists;
- that animal therapy programmes should be structured in a multidisciplinary way, always including veterinarians who should be responsible for the animals' welfare; and
- that programmes should be carefully planned, as for any other therapeutic regimen, using a suitable physiological rationale for clinical psychotherapy.

**Keywords:** positive human-dog interaction, physiological parameters, animal-facilitated psychotherapy, pets as prescription, human-human interaction theories, animal-animal interaction theories, human-animal interaction theories, therapeutic rationale, *attentionis egens*, psychiatric training.

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OPSOMMING

**'N FISIOLOGIESE BASIS VIR  
DIER-FASILITERENDE PSIGOTERAPIE**

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## OPSOMMING

Sedert Boris Levinson sy pionierstudie in die veld van dier-fasiliterende psigoterapie in die sestigs gepubliseer het, het menslike gesondheidsprofesies beperkte belangstelling daarin getoon. 'n Spesifieke probleem in dier-fasiliterende psigoterapie is die afwesigheid van teoretiese beginsels wat 'n rationale vir so 'n teorie kan voorsien. Die doelwitte van hierdie studie was dus tweevoudig: eerstens, om bestaande teorieë oor mens-tot-mens en mens-tot-dier te integreer en tweedens, om 'n gemeenskaplike fisiologiese ondersteuning vir sulke teoretiese beginsels te bepaal.

Deur gebruik te maak van 'n elektiewe benadering, is positiewe interaksie (aandagsoekende behoeftes) in 16 persoonlike teorieë geëvalueer as 'n integrale deel van die psigologiese, emosionele, sosiale en kulturele behoeftes van alle individue. Aandag was aangedui as 'n basiese behoefte en dat baie van die terapeutiese voordele waarop aanspraak gemaak word in mens-dier-interaksies, in werklikheid gebaseer is op so 'n behoefte. Verder is aange- toon dat positiewe interaksie tussen mens en dier wederkerig is en hierdie onderlinge effek kan bydra tot die sukses van sulke terapieë. Die term wat gebruik is om hierdie basiese behoefte aan aandag te beskryf is *attentionis egens*. Latynse terminologie is verkies om verwarring te voorkom met die term aandagsoekende gedrag, wat dikwels geassosieer word met negatiewe- of probleemgedrag.

'n Fisiologiese raamwerk is gebruik om die teoretiese beginsels te onder- steun. Dit was gebaseer op bekende studies wat verband hou met mens- mens en dier-dier affiliasie, ten einde meetbare parameters daar te stel vir positiewe mens-dier-interaksie. Die metode was om basislyn-waardes te bepaal en weer ná positiewe interaksie met 'n hond. Die parameters was 'n angs-skaal, bloeddruk, fenieletielamien, norepinefrien, dopamien, endor- fiene, oksitosien, prolaktien en kortisol. 'n Aanduiding wanneer om bloed- monsters te versamel vir chemiese analyses, was 'n verlaging in bloeddruk oor 'n periode van maksimum 30 minute van positiewe interaksie. Deelnem- ers was verdeel in twee groepe, die eksperimentele groep wat met honde geïnterreageer het en 'n kontrole groep wat met onbekende honde geïnter- reageer het. Die effek van die hond-interaksies was ook vergelyk met die effek van stil boeklees deur dieselfde deelnemers.

Die resultate het die onderlinge fisiologiese effek in mense en honde ondersteun, sowel as die teoretiese beginsels vir dier-gefasiliteerde psigoterapie. Sulke fisiologiese parameters het die weg gebaan vir 'n insluitende teorie oor positiewe interaksie gedrag, veral waar basiese aandagbehoefte vervul moet word. Die *attentionis egens*-teorie blyk eerder inklusief, as opponerend teenoor ander positiewe interaksie teorieë te wees.

Die belangrikste resultate was:

- 'n betekenisvolle vermindering in bloeddruk (5-24 minute) is 'n geldige indikator van biochemiese verandering wat geassosieer is met positiewe interaksie;
- die eksperimentele groep (di met eie honde), het betekenisvolle hoër plasmavlakke van oksitoniene en prolaktien getoon, wat op 'n langtermyn binding dui;
- beide spesies het betekenisvolle verskille van  $\beta$ -fenieletielamien,  $\beta$ -endorfiene, dopamien, oksitosien en prolaktien getoon, wat daarop dui dat die fisiologiese reaksie gedurende positiewe mens-hond-interaksie wederkerig van aard is;
- daar was ooreenkomste tussen 'n angs-status vraelys (gevoel) en normale gemiddelde arteriële bloeddruk van mense, di geen betekenisvolle angs was teenwoordig nie;
- positiewe interaksie met honde kan dieselfde, en in sommige gevalle 'n beter effek hê as 'n stil, kalm intervensie soos boeklees;
- 'n neurochemiese profiel vir positiewe mens-hond-interaksie behoort ten minste  $\beta$ -fenieletielamien, dopamien en oksitosien in te sluit; en
- norepinefrien het gedaal, waarskynlik as reaksie op die intraveneuse bloedkolleksie, en kortisol het betekenisvol in mense en die kontrole hondegroep gedaal. Honde wat by hul eienaars was, was meer opgewonde oor die nuwe ervaring.

Ten opsigte van die toepassing van hierdie kennis, kan diere vir terapie beskryf word in 'n soortgelyke formaat as vir medisinale behandeling. Dit word verder aanbeveel dat:

- diere-fasiliterende psigoterapie algemeen aanvaar word as 'n benadering vir psigoterapie en dat dit deel word van die formele kurrikula van psigiaters;
- dat diere in terapieprogramme gestruktueer word op 'n multidissiplinêre basis wat as 'n reël veeartse sal insluit om na die welsyn van die diere om te sien; en
- dat programme met oorleg beplan word op dieselfde wyse as vir enige ander terapeutiese benadering, terwyl 'n geskikte fisiologiese rationale vir kliniese psigoterapie gebruik word.

**Slutelwoorde:** positiewe mens-hond-interaksie, fisiologiese parameters, diere-gefasiliteerde terapie, diere op voorskrif, mens-mensinteraksie teorieë, diere-diereinteraksie teorieë, mens-diereinteraksie teorieë, terapeutiese rationale, *attentionis egens*, psigiatriese opleiding.

## INDEX

**Page**

Declaration . . . . .	i
Acknowledgements . . . . .	ii
Abstract . . . . .	iv
Opsomming . . . . .	viii
Index . . . . .	xi
List of figures . . . . .	xiv
List of tables . . . . .	xxii
List of plates . . . . .	xxiv
CHAPTER 1: HUMAN ANIMAL INTERACTION IN PERSONOLOGY	
CONTEXT	
CHAPTER 1: INTRODUCTION . . . . .	1
1.1 Background and motivation . . . . .	1
1.2 Problem statement . . . . .	3
1.3 Hypothesis . . . . .	3
1.4 Aim and objectives of the study . . . . .	3
1.4.1 General aim . . . . .	3
1.4.2 Specific objectives . . . . .	3
CHAPTER 2: EXISTING INTERACTION THEORIES IN PERSONOLOGY	
2.1 Introduction . . . . .	5
2.2 Interaction theories . . . . .	8
2.2.1 Alfred Adler . . . . .	8
2.2.2 Gordon Allport . . . . .	9
2.2.3 Karen Horney . . . . .	10
2.2.4 Erich Fromm . . . . .	11
2.2.5 Harry Stack Sullivan . . . . .	13

2.2.6	Erik Erikson . . . . .	14
2.2.7	John Dollard and Neal Miller . . . . .	15
2.2.8	Albert Bandura . . . . .	16
2.2.9	Henry Murray . . . . .	18
2.2.10	Abraham Maslow . . . . .	20
2.2.11	Carl Rogers . . . . .	21
2.2.12	George Kelly . . . . .	22
2.2.13	Victor Frankl . . . . .	22
2.2.14	Kurt Lewin . . . . .	24
2.2.15	Fritz Perls . . . . .	25
2.2.16	Phenomenological psychology . . . . .	26
2.3	Ideas from the natural sciences . . . . .	27
2.3.1	Fritjof Capra . . . . .	28
2.3.2	Danah Zohar and Ian Marshall . . . . .	30
2.3.3	Paul Davis . . . . .	32
2.3.4	Bryan Appleyard . . . . .	34
2.4	Interpretation of interaction theories . . . . .	35
2.5	Discussion . . . . .	38
<b>CHAPTER 3: HUMAN-ANIMAL INTERACTION IN HUMAN-HUMAN</b>		
	<b>CONTEXT . . . . .</b>	40
3.1	Introduction . . . . .	40
3.2	Evolution of interaction behaviour . . . . .	40
3.3	Attention needs and therapy . . . . .	48
3.4	Discussion . . . . .	50
<b>CHAPTER 4: THE CURRENT STATUS OF ANIMAL-FACILITATED</b>		
	<b>PSYCHOTHERAPY . . . . .</b>	52
4.1	Introduction . . . . .	52
4.2	Animals in therapy before 1960 . . . . .	53
4.3	Animal-facilitated psychotherapy: 1960-1979 . . . . .	54
4.4	Animal-facilitated psychotherapy: 1980-1989 . . . . .	56
4.5	Animal-facilitated psychotherapy: 1990-1999 . . . . .	63
4.6	A review on animal-facilitated psychotherapy literature . . . . .	67
4.7	Animal-facilitated psychotherapy in South Africa . . . . .	70
4.8	Discussion . . . . .	71

CHAPTER 5: THE PHYSIOLOGY OF POSITIVE INTERACTION . . . . .	74
5.1 Introduction . . . . .	74
5.2 Interaction theories and physiological parameters . . . . .	77
5.3 Neurotransmitters . . . . .	81
5.3.1 Norepinephrine . . . . .	84
5.3.2 Dopamine . . . . .	84
5.3.3 Phenylethylamine . . . . .	85
5.3.4 Endorphin . . . . .	86
5.4 Hormones . . . . .	86
5.4.1 Prolactin . . . . .	86
5.4.2 Oxytocin . . . . .	87
5.4.3 Cortisol . . . . .	88
5.5 Absence of interaction . . . . .	88
5.6 Discussion . . . . .	89
CHAPTER 6: METHODOLOGY FOR ESTABLISHING PHYSIO- LOGICAL SUPPORT FOR INTERACTION THEORIES . .	91
6.1 Introduction . . . . .	91
6.2 Hypothesis . . . . .	92
6.3 Benefits arising from the experiment . . . . .	92
6.4 Materials and method . . . . .	92
6.4.1 Type of research . . . . .	92
6.4.2 Pilot study . . . . .	92
6.4.3 Sample selection . . . . .	93
6.4.3.1 Human subjects . . . . .	93
6.4.3.2 Dog subjects . . . . .	94
6.4.4 Experimental design . . . . .	94
6.4.4.1 Experimental and control group . . . . .	95
6.4.4.2 Pre- and post-test control test (counter balancing design) with different groups . . . . .	95
6.4.4.3 Pre- and post-test with different interventions . . . . .	95
6.4.4.4 Questionnaire . . . . .	96
6.4.5 Experimental model . . . . .	97
6.4.6 Experimental procedures . . . . .	98
6.4.7 Observation . . . . .	101
6.4.8 Variables . . . . .	101
6.4.8.1 Independent variables . . . . .	101

6.4.8.2	Dependent variables	101
6.5	Validity and reliability of study	102
6.5.1	Validity	102
6.5.2	Reliability	104
6.6	Ethics	105
6.7	Statistics	105
CHAPTER 7: RESULTS OF ESTABLISHING PHYSIOLOGICAL PARAMETERS DURING POSITIVE HUMAN-ANIMAL INTERACTION		108
7.1	Biographical details of subjects	108
7.1.1	Humans	108
7.1.2	Dogs	108
7.2	Questionnaire to determine the state of anxiety of human subjects	109
7.3	Interpretation of results	110
7.4	Pilot study	110
7.4.1	Aims and method	110
7.4.2	Subjects of pilot study	111
7.4.3	Results of pilot study	111
7.4.4	Conclusion of pilot study	112
7.5	The main experiment	112
7.5.1	Results	112
7.6	Changes in MAP and selected biochemicals in humans interacting positively with dogs	113
7.6.1	Changes in MAP	113
7.6.2	Changes in plasma neurotransmitters	115
7.6.2.1	Phenylacetic acid as metabolite of phenylethylamine	115
7.6.2.2	Dopamine	116
7.6.2.3	$\beta$ -endorphin	118
7.6.2.4	Norepinephrine	120
7.6.2.5	Oxytocin	123
7.6.2.6	Prolactin	126
7.6.2.7	Cortisol	128
7.7	Statistical differences between experimental and control human groups	131
7.8	Changes in MAP and selected biochemicals in dogs	131
7.8.1	Changes in MAP	131
7.8.2	Changes in plasma neurotransmitters	133

7.8.2.1	Phenylacetic acid as metabolite of phenylethylamine . . . .	133
7.8.2.2	Dopamine . . . . .	134
7.8.2.3	$\beta$ -endorphin . . . . .	135
7.8.2.4	Norepinephrine . . . . .	136
7.8.2.5	Oxytocin . . . . .	137
7.8.2.6	Prolactin . . . . .	138
7.8.2.7	Cortisol . . . . .	139
7.9	Statistical differences between experimental and control dog groups . . . . .	140
7.10	Physiological changes in humans and dogs . . . . .	140
7.10.1	Changes in MAP . . . . .	140
7.10.2	Changes in plasma neurotransmitters . . . . .	141
7.10.2.1	Phenylacetic acid as metabolite of phenylethylamine . . . .	141
7.10.2.2	Dopamine . . . . .	143
7.10.2.3	$\beta$ -endorphin . . . . .	144
7.10.2.4	Norepinephrine . . . . .	145
7.10.2.5	Oxytocin . . . . .	146
7.10.2.6	Prolactin . . . . .	147
7.10.2.7	Cortisol . . . . .	148
7.11	Statistical difference between humans and dogs . . . . .	149
7.12	Quiet book-reading as a control to positive dog interaction . . . . .	149
7.12.1	MAP changes . . . . .	149
7.12.2	Changes in plasma neurotransmitters . . . . .	150
7.12.2.1	Phenylacetic acid as metabolite of phenylethylamine . . . .	150
7.12.2.2	Dopamine . . . . .	151
7.12.2.3	$\beta$ -endorphin . . . . .	152
7.12.2.4	Norepinephrine . . . . .	153
7.12.2.5	Oxytocin . . . . .	154
7.12.2.6	Prolactin . . . . .	155
7.12.2.7	Cortisol . . . . .	156
7.13	Statistical differences between quiet book-reading and positive dog interaction . . . . .	157
7.14	Discussion . . . . .	157
7.14.1	Results in perspective . . . . .	158
7.14.2	Placebo effect . . . . .	159



7.14.3	Neurochemical profile of human-animal interaction . . . . .	161
7.14.4	Measurement of emotions . . . . .	162

CHAPTER 8: HUMAN-ANIMAL INTERACTION THEORIES - A CRITICAL ANALYSIS . . . . . 164

8.1	Introduction . . . . .	164
8.2	Terminology . . . . .	164
8.2.1	<i>Attentionis egens</i> . . . . .	167
8.3	Existing theories on human-animal interaction . . . . .	168
8.3.1	Brickel: 1982 . . . . .	169
8.3.2	Kidd and Kidd: 1987 . . . . .	169
8.3.3	Case: 1987 . . . . .	171
8.3.4	Bergler: 1988 . . . . .	171
8.3.5	Odendaal: 1988 . . . . .	173
8.3.6	Doi: 1991 . . . . .	174
8.3.7	Hills: 1993 . . . . .	175
8.3.8	Wilson: 1994 . . . . .	175
8.3.9	Human-Animal Interaction Conference, Geneva: 1995 . .	177
8.3.10	Costall: 1996 . . . . .	179
8.3.11	Cameron: 1997 . . . . .	180
8.3.12	Wilson: 1998 . . . . .	181
8.4	Discussion . . . . .	181

CHAPTER 9: APPLICATIONS OF HUMAN-ANIMAL THEORY IN ANIMAL-FACILITATED PSYCHOTHERAPY . . . . . 183

9.1	Introduction . . . . .	183
9.2	Conditions for animal-facilitated psychotherapy . . . . .	183
9.2.1	Therapist . . . . .	184
9.2.2	Patient . . . . .	184
9.2.3	Animal . . . . .	184
9.3	Preconditions for animal-facilitated psychotherapy . . . . .	184
9.3.1	Preconditions pertaining medical factors . . . . .	185
9.3.1.1	Hygiene . . . . .	185
9.3.1.2	Zoonoses . . . . .	186
9.3.1.3	Injuries . . . . .	188
9.3.1.4	Allergies . . . . .	189
9.3.2	Preconditions pertaining to patient needs . . . . .	190

9.3.2.1	Matching patient and animal . . . . .	190
9.3.2.2	When animals, that patient became attached to, die . . . . .	190
9.3.3	Preconditions pertaining the needs of animals used in therapy . . . . .	192
9.3.3.1	People can abuse animals . . . . .	192
9.3.3.2	Sources and selection of animals . . . . .	192
9.3.3.3	Patients not able to care for animals anymore . . . . .	193
9.3.4	Staff and management involved in animal-facilitated psychotherapy . . . . .	193
9.3.4.1	Success of an animal-facilitated programmes . . . . .	194
9.3.4.2	Staff . . . . .	194
9.3.5	Financial aspects . . . . .	196
9.3.5.1	Spectrum of financial liabilities in animal therapy . . . . .	196
9.3.5.2	Sources of finances . . . . .	196
9.4	Applied animal-facilitated psychotherapy . . . . .	197
9.5	Animals on prescription . . . . .	199
9.6	Discussion . . . . .	201
 CHAPTER 10: SUMMARY AND EVALUATION OF STUDY . . . . .		 206
10.1	Introduction . . . . .	206
10.2	Summary of objectives . . . . .	206
10.2.1	Existing interaction theories in personology . . . . .	206
10.2.2	Human-animal interaction in human-human context . . . . .	206
10.2.3	Current status of animal-facilitated psychotherapy . . . . .	207
10.2.4	Determining a physiological basis for positive interaction . . . . .	207
10.2.5	Methodology to investigate a physiological basis for human-animal interaction . . . . .	208
10.2.6	Results of experimental procedures . . . . .	208
10.2.7	Evaluating existing human-animal interaction theories . . . . .	208
10.2.8	Application of human-animal theory in animal- facilitated psychotherapy . . . . .	209
10.3	Evaluation of study in terms of its contributions . . . . .	209
10.3.1	Converging a wide spectrum of interaction literature . . . . .	209
10.3.2	Interspecies physiological indicators of positive interaction . . . . .	210
10.3.3	Rationale for animal-facilitated psychotherapy . . . . .	210

10.4	Self-criticism of the study . . . . .	210
10.4.1	Elective approach . . . . .	210
10.4.2	The comprehensive role of animals . . . . .	210
10.4.3	Sample size . . . . .	211
10.4.4	Questionnaire . . . . .	211
10.4.5	Clinical studies . . . . .	211
10.5	Further research . . . . .	211
10.5.1	Biochemistry of interspecies interaction . . . . .	212
10.5.2	Drug development . . . . .	212
10.5.3	Theory in therapy . . . . .	212
10.6	Recommendations . . . . .	212
10.6.1	Education . . . . .	212
10.6.2	Multidisciplinary approach . . . . .	213
10.6.3	Planned programmes . . . . .	213
10.6.4	Clinical application of the rationale . . . . .	213
10.7	Conclusion . . . . .	213
REFERENCES . . . . .		215
ADDENDUM A: RAW DATA . . . . .		244
ADDENDUM B: LETTERS OF CONSENT . . . . .		245
ADDENDUM C: BILINGUAL QUESTIONNAIRE . . . . .		246
7.1	Plasma oxycortin (OXO) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	116
7.2	Plasma prolactin (PRO) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	117
7.3	Plasma oxytocin (OXO) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	118
7.4	Plasma cortisol (COR) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	119
7.5	Plasma oxycortin (OXO) of dogs before and after interacting positively with own (n = 9) and unfamiliar (n = 9) humans . . . . .	120
7.6	Plasma prolactin (PRO) of dogs before and after interacting positively with own (n = 9) and unfamiliar (n = 9) humans . . . . .	121
7.7	Plasma oxytocin (OXO) of dogs before and after interacting positively with own (n = 9) and unfamiliar (n = 9) humans . . . . .	122
7.8	Plasma cortisol (COR) of dogs before and after interacting positively with own (n = 9) and unfamiliar (n = 9) humans . . . . .	123

**LIST OF FIGURES**

3.1	Human-animal interaction in human-human context . . . . .	51
5.1	A model based on physiological parameters to link human-human, animal-animal and human-animal interaction theories . . . . .	90
6.1	Basic pre- and post-test design with different groups . . . . .	95
6.2	Pre- and post-test with different interventions . . . . .	96
7.1	Mean arterial blood pressure (MAP) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	113
7.2	Plasma phenylacetic acid (PAA) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	115
7.3	Plasma dopamine (DOP) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	116
7.4	Plasma beta-endorphin (END) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	118
7.5	Plasma norepinephrine (NEP) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	120
7.6	Plasma oxytocin (OXT) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	123
7.7	Plasma prolactin (PRO) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	126
7.8	Plasma cortisol (COR) of humans before and after interacting positively with own (n = 9) and unfamiliar (n = 9) dogs . . . . .	128

7.9	Mean arterial blood pressure (MAP) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	131
7.10	Plasma phenylacetic acid (PAA) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	133
7.11	Plasma dopamine (DOP) of dogs before and after inter-acting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	134
7.12	Plasma beta-endorphin (END) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	135
7.13	Plasma norepinephrine (NEP) of dogs before and after inter- acting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	136
7.14	Plasma oxytocin (OXT) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	137
7.15	Plasma prolactin (PRO) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	138
7.16	Plasma cortisol (COR) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	139
7.17	Mean arterial blood pressure (MAP) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	140
7.18	Plasma phenylacetic acid (PAA) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	141
7.19	Plasma dopamine (DOP) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	142
7.20	Plasma beta-endorphin (END) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	143

7.21	Plasma norepinephrine (NEP) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	144
7.22	Plasma oxytocin (OXT) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	145
7.23	Plasma prolactin (PRO) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	146
7.24	Plasma cortisol (COR) of humans (n = 18) and dogs (n = 18) before and after interacting positively with each other . . . . .	147
7.25	Mean arterial blood pressure (MAP) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	148
7.26	Plasma phenylacetic acid (PAA) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	149
7.27	Plasma dopamine (DOP) of humans before and after inter-acting positively with dogs and quiet book-reading (n = 18) . . . . .	150
7.28	Plasma beta-endorphin (END) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	151
7.29	Plasma norepinephrine (NEP) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	152
7.30	Plasma oxytocin (OXT) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	153
7.31	Plasma prolactin (PRO) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	154
7.32	Plasma cortisol (COR) of humans before and after interacting positively with dogs and quiet book-reading (n = 18) . . . . .	156

8.1	Proposed theoretical model according to Bergler, 1998 . . . . .	172
8.2	Clients' needs to keep companion animals according to Odendaal, 1988 . . . . .	174
9.1	Needs Assessment Model according to Barnett, Quigley, 1984 . . . . .	195
7.1	Status of anxiety scores on a 5-point scale questionnaire before and after positive dog interaction . . . . .	172
7.2	β-endorphin (PEA) values in human and dog subjects before and after positive interaction . . . . .	173
7.3	β-endorphin (PEA) values in human and dog subjects before and after positive interaction (n = 9) . . . . .	173
7.4	Concentrations of dopamine (log/f) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.5	Concentrations of β-endorphin (ng/ml) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.6	Concentrations of dopamine (log/f) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.7	Concentrations of β-endorphin (ng/ml) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.8	Concentrations of norepinephrine (log/f) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.9	Concentrations of oxytocin (ng/l) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174
7.10	Concentrations of prolactin (ng/l) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	174

**LIST OF TABLES**

6.1	Roster for experimental design . . . . .	97
7.1	Characteristics of human and dog subjects participating in human-dog interaction . . . . .	109
7.2	State of anxiety scores on a 5-point scale questionnaire before and after positive dog interaction . . . . .	109
7.3	Phenylethylamine (PEA) values in human and dog subjects before and after positive interaction (n = 6) . . . . .	112
7.4.	Mean arterial blood pressure of humans (mmHg) before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	114
7.5	Concentrations of phenylacetic acid (pg/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	115
7.6	Concentrations of dopamine (pg/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	117
7.7	Concentrations of β-endorphin (pmol/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	118
7.8	Concentrations of norepinephrine (pg/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	121
7.9	Concentrations of oxytocin (mg/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	123
7.10	Concentrations of prolactin (ng/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	126



7.11	Concentrations of cortisol (nmol/ℓ) in the plasma of humans before and after interacting positively with own dogs (n = 9) and unfamiliar dogs (n = 9) . . . . .	128
7.12	Mean arterial blood pressure (mmHg) of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	132
7.13	Concentrations of phenylacetic acid (pg/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	133
7.14	Concentrations of dopamine (pg/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . .	134
7.15	Concentrations of β-endorphin (pmol/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	135
7.16	Concentrations of norepinephrine (pg/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	136
7.17	Concentrations of oxytocin (ng/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . .	137
7.18	Concentrations of prolactin (ng/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . .	138
7.19	Concentrations of cortisol (nmol/ℓ) in the plasma of dogs before and after interacting positively with owners (n = 9) and unfamiliar dog lovers (n = 9) . . . . .	139
7.20	Mean arterial blood pressure (mmHg/ℓ) of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	141
7.21	Concentrations of phenylacetic acid (pg/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	142

7.22	Concentrations of dopamine (pg/ℓ) in the plasma of human (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	143
7.23	Concentrations of β-endorphin (pmol/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	144
7.24	Concentrations of norepinephrine (pg/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	145
7.25	Concentrations of oxytocin (ng/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	146
7.26	Concentrations of prolactin (ng/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	147
7.27	Concentrations of cortisol (nmol/ℓ) in the plasma of humans (n = 18) and dogs (n = 18) interacting positively with each other . . . . .	148
7.28	Mean arterial blood pressure (mmHg/ℓ) of humans reading a book quietly (n = 18) . . . . .	150
7.29	Concentrations of phenylacetic acid (pg/ℓ) in the plasma of humans reading a book quietly (n = 18) . . . . .	151
7.30	Concentrations of dopamine (pg/ℓ) in the plasma for humans reading a book quietly (n = 18) . . . . .	152
7.31	Concentrations of β-endorphin (pmol/ℓ) in the plasma for humans reading a book quietly (n = 18) . . . . .	153
7.32	Concentrations of norepinephrine (pg/ℓ) in the plasma for humans reading a book quietly (n = 18) . . . . .	154
7.33	Concentrations of oxytocin (ng/ℓ) in the plasma for of humans reading a book quietly (n = 18) . . . . .	155
7.34	Concentrations of prolactin (ng/ℓ) in the plasma for humans reading a book quietly (n = 18) . . . . .	156
7.35	Concentrations of cortisol (nmol/ℓ) in the plasma for humans reading a book quietly (n = 18) . . . . .	157
8.1	Theories on human-animal interaction by author, key idea and link to <i>attentionis egens</i> . . . . .	182

9.1	Conditions and preconditions for animal-facilitated psychotherapy . . . . .	197
9.2	An example of an information leaflet on the use of animals in animal-facilitated psychotherapy in the format of a leaflet for the use of prescribed drugs . . . . .	200

CHAPTER 1

LIST OF PLATES

INTRODUCTION

6.1 A posed example of the experimental conditions . . . . . 97

1.1 Background and motivation

LIST OF ADDENDA

ADDENDUM A: RAW DATA . . . . . 244

ADDENDUM B: LETTERS OF CONSENT . . . . . 245

ADDENDUM C: BILINGUAL QUESTIONNAIRE . . . . . 246