From security to attachment: Mary Ainsworth's contribution to attachment theory

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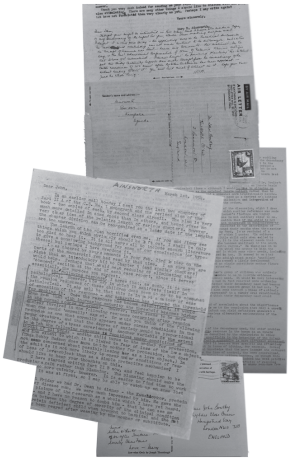


Prologue

Over the past decades, it has become increasingly clear that the contribution of Mary Ainsworth (1913-1999) to attachment theory has been underestimated. John Bowlby has been regarded as the founder of attachment theory, with Ainsworth providing some empirical evidence for the theory and designing the Strange Situation Procedure with which to measure the quality of attachment relationships. Few authors (cf. Bretherton, 2003) have described how Ainsworth also offered important theoretical insights that partly shaped attachment theory. However, when writing about Ainsworth, authors usually take her time with Bowlby or her Uganda study as a starting point. Not much is known about her early work. In this thesis, we explore Ainsworth's years in Toronto, where she studied and worked from 1930-1950 under and later with William Blatz, and we argue that this experience shaped her later work with Bowlby and attachment theory. We will trace back the roots of Ainsworth's contribution to attachment theory and add a new perspective to its historiography.

Chapter One describes the separate developments of Blatz and his security theory, of Bowlby and his mother-child separation studies, and of Ainsworth's early education and work at the University of Toronto. When Ainsworth subsequently took 20 years of theoretical and practical experience with her from Toronto to London, where she worked with Bowlby from 1950-1953, we see how Blatz's security theory was integrated with Bowlby's attachment theory in the making. Ainsworth continued to collaborate with Bowlby on the development of attachment theory when she worked independently in Uganda and Baltimore. It becomes clear that Blatz's influence was significant and that he left his marks, through her, on attachment theory.

Chapter Two explains the Strange Situation Procedure and its attachment classifications in detail. Today, it is one of the most widely used instruments in developmental psychology, making it possible to typify the caregiver-child relationship within a time frame of 20 minutes.

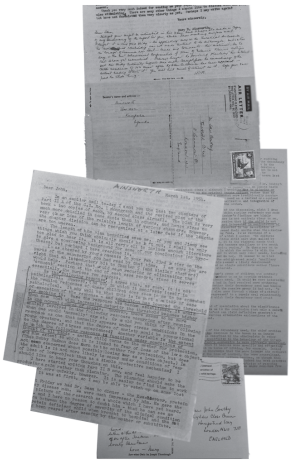
Chapter Three traces back the roots of the Strange Situation Procedure, and shows that while it seemed a novel and unique instrument when the first results were published in 1969, in fact many researchers had been carrying out similar procedures. However, we argue that the Strange Situation Procedure stood out from the other instruments because of its combination of Ainsworth's extensive working experience on security measures with Blatz, and the connection with Bowlby's evolutionary-based attachment theory. This difference may have accounted for its success.

Chapter Four reports on a replication study of measuring security through using little-known security questionnaires developed by Ainsworth when working for and later with Blatz. She carried on refining them until the early 1960s. As discussed in the other chapters in this thesis, Ainsworth's experience in designing instruments to measure

security proved important when designing the Strange Situation Procedure. We asked a Dutch sample of 247 students to complete both the pioneer questionnaire measuring security designed by Ainsworth, and a present-day questionnaire measuring attachment style, the ECR-RS (Fraley, Heffeman, Vicary & Brumbaugh, 2011). Results show that it is possible to construct a reliable and valid security measure on the basis of Ainsworth's original items.

The appendix consists of an article on René Spitz and Harry Harlow, researchers in the field of mother-child separation in humans and monkeys. Ainsworth referred to the work of both, met Harlow several times and corresponded with him. Harlow's work was one of the inspirations for Ainsworth's design of the Strange Situation Procedure.

Taken together, this thesis will broaden the general picture of Ainsworth's contribution to attachment theory and add to a better understanding of its roots.



Chapter 1

From Secure Dependency to Attachment: Mary Ainsworth's integration of Blatz's Security Theory into Bowlby's Attachment Theory

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Submitted for publication

ABSTRACT

John Bowlby is generally regarded as the founder of attachment theory, with some help of Mary Ainsworth. However, Ainsworth's contribution is larger than hitherto believed. Apart from general theoretical input, she contributed the notion of the secure base and exploratory behavior, the Strange Situation Procedure and its classification system, and the notion of maternal sensitivity. On closer scrutiny, all these contributions appear to be influenced by William Blatz and his security theory. Blatz was Ainsworth's mentor and colleague in Toronto from 1930 - 1950. When Ainsworth started working with Bowlby in the 1950s, around the time he turned to evolutionary theory for an explanation of his findings, she integrated Blatzian security theory into Bowlby's theory in the making. She subsequently used her theoretical and practical experience to enrich attachment theory. Even though Blatz is hardly mentioned nowadays, many aspects of attachment theory can be traced back to his security theory.

"When I think of the course of my career, I can see a common thread the whole way through the course that is Blatz, no matter how much I have re-translated his ideas and so on. That is where it started."

(Ainsworth in an interview with Roger Meyers, 1969).

INTRODUCTION

The British psychiatrist and psychoanalyst John Bowlby (1907-1990) is generally regarded as the founder of attachment theory, which he gradually developed and comprehensively formulated in his trilogy (1969, 1973, 1980). According to attachment theory, human infants need a consistent nurturing relationship with one or more sensitive caregivers in order to develop into healthy individuals. Parental unavailability or unresponsiveness may contribute to aberrant behavior or, depending on other risk factors, to psychopathology. Attachment theory is now generally regarded as a major theory in developmental psychology and developmental psychopathology, and over the years its theoretical framework has inspired researchers across the world to conduct thousands of studies.

For a long time, Bowlby was regarded the sole founder. Only since the 1990s, Mary Ainsworth (1913-1999) has gained credit as co-founder of attachment theory, mainly as provider of empirical evidence (e.g., Holmes, 1993; Karen, 1994, Van Dijken, 1998). When tracing back the origins of attachment theory, however, a different picture emerges. As we shall see, Ainsworth's contribution was considerable and went beyond providing empirical evidence (cf. Bretherton, 2003). She clearly added much to the attachment paradigm through her methodological innovations (the Strange Situation Procedure), her new categorization of attachment (into A, B, and C groups), and her theoretical notions (e.g., the balance between exploration and security, the notion of maternal sensitivity). Part of her theoretical ideas were based on the ideas of William Blatz (1895-1964) and his security theory. Ainsworth started off as one of Blatz's students at the University of Toronto in the early 1930s, and in the 1940s became his close colleague. In this contribution, on the basis of an evaluation of written papers and books, personal correspondence between Ainsworth and Bowlby, and personal correspondence between Ainsworth and her former colleagues in Toronto, we will add a new perspective to the historiography of attachment theory and show that Ainsworth's use of Blatzian security theory has been much more important in shaping attachment theory than hitherto realized.

Blatz and Bowlby started to develop their theories during the first half of the 20th century, against the background of the rise of psychoanalysis, the start of the mental health movement and the introduction of the idea that the development of children was shaped by parenting. At the end of the 19th century, the psychoanalytic ideas of Sigmund Freud became widely known and physical health was explained by psychogenic causes, which in turn were believed to find their origin in events during early childhood (Freud, 1920). At the beginning of the 20th century, the "mental hygiene movement" came into existence as a new way of trying to influence human health and well-being by preventing and treating mental illness. Increasing attention was being paid to development during early childhood, which came to be viewed as critical for later mental health (Beekman, 1977). The development of children became the focus of interest and G. Stanley Hall initiated the Child Study Movement, asking teachers and well-to-do mothers to collect knowledge about the development of children (Ross, 1972). Mothers attended specially organized congresses to discuss the best ways to raise children which gave the Child Study Movement the additional benefits of a Parent (self-) Education Movement. Gradually the idea took hold that mothers, much more than the child's genes, were responsible for the way their children turned out.

It seems natural, therefore, that Blatz and Bowlby searched for the origin of mental problems in the pressure cooker of the nuclear family since psychopathology was to be understood as the result of unresolved problems in childhood, for which parents were held responsible. We will see that Blatz and Bowlby shared a medical background and an interest in the psychological development of children. They were both influenced by psychoanalysis – as was fairly common for people working with children during that period – and shared a great interest in the ideas of Freud. During the Second World War, they both focused their efforts on children in the UK who were (temporarily) growing up without adequate maternal care.

However, despite a similar life course and overlapping interests and careers, Blatz and Bowlby never met. Living on different continents, they developed comparable ideas about the influences of relationships on the development of children, and how the effects of these would carry into adulthood. While Bowlby studied the effects of mother-child separation in the UK in the 1930s and 1940s, William Blatz in Toronto was developing his 'security theory'. Ainsworth absorbed this security theory while studying and working with Blatz for almost two decades. When Ainsworth started working with Bowlby in 1950, she came well-equipped and started to infuse Bowlby's theory in the making--which up to that point was based only on separation findings--with Blatz's security theory. At around the same time, Bowlby, in his search for an explanation for the devastating effects of separation in early childhood, was introduced to ethology (Van der Horst, 2011). He would eventually explain these effects with the help of evolutionary theory, which would make attachment theory the first evolutionary science

of human behavior. All through the 1950s and 1960s further important aspects were added to what was to become attachment theory, notably among them the earlier mentioned methodological and theoretical contributions of Ainsworth. We will see that much of this important input was based on what Ainsworth had learned from Blatz. However, before discussing the development of attachment theory after the integration of Blatzian ideas and security theory into Bowlby's theory in the making, we will take a closer look at how Blatz and Bowlby developed their original theories.

BLATZ AND SECURITY THEORY

William Emet Blatz (1895-1964) was born in Hamilton as the youngest of nine children in a German immigrant family. He received his BA in physiology in 1916, his MA in physiology in 1917, his MB (Bachelor of Medicine) in 1921 at the University of Toronto, and his PhD in psychology at the University of Chicago in 1924. That same year Blatz was hired by Dr. Clarence M. Hincks and Professor Edward Bott, as Assistant Professor in the Department of Psychology at the University of Toronto, where Blatz was to be in charge of a new child study project. The University of Toronto was asked to carry out a longitudinal study following the social adjustment of children in a laboratory nursery school in order to learn as much as possible about the development and processes of individual adjustment of normal children. The project was funded by the Canadian National Committee for Mental Hygiene (of which Hincks and Bott were members and of which Blatz, incidentally, would be Research Director from 1925 to 1935). Following psychoanalytic thinking prevalent in those years, Blatz reasoned that good adjustment in childhood would be the best predictor for happiness in later years, and that in order to begin the search for mental hygiene principles, studying children would be the most logical start (Blatz & Bott, 1929). Parallel to the longitudinal child development study, a parent education program was set up.

All through the 1920s and 1930s Blatz remained involved in research projects concerning pre-school and school-aged children. In 1931 he became director of the Windy Ridge Day School where research was conducted and from 1935 to 1938 he was involved with the Dionne Quintuplets, the first quintuplets known to survive. The Ontario government took custody of the children at the age of 4 months, and Blatz was appointed as their Educational Consultant.

During this period, Blatz wrote a number of books and articles on parenting, some together with colleagues like Sperrin Chant, Edward Bott, Helen Bott or Dorothy Millichamp, and some alone. In all his writing it becomes clear that Blatz strongly felt that a child needed a sense of belonging, and his notion that children need to be able to rely on their parents in order to grow up mentally healthy was present from the start: "That the child should grow up with complete trust in his parents is a further aid to

good adjustment, provided that that trust is deserved" (Blatz & Bott, 1931, p. 183). In order to study mental hygiene effectively, however, Blatz increasingly felt the need for an operational definition of mental health, or adjustment, as he called it.

Influenced by his medical background and by the omnipresent psychoanalytical ideas (as a young man, Blatz read all of Freud's work (Raymond, 1991)), Blatz's earlier writings discussed the ongoing cycle of 'appetites' (cf. 'drives' in psychoanalysis) that needed to be satisfied: hunger, thirst, sleep, elimination, sex, and play (or 'change'), and the attempts made by the organism to fulfill these needs. Blatz described how the cycles of the appetites continuously repeat themselves as children develop from totally dependent to more and more independent – while each time effort has to be made or learning has to be done to meet the need of the moment (Blatz & Bott, 1929; Blatz, 1933). In his explanations Blatz referred to McDougall's (1928) terms of self-assertion (mastery) and its opposite of self-negation (dependence). He considered guiding the young child in fulfilling these needs to be of dire importance: "We are inclined to think that the proper management of the self-tendencies of the child during the earlier pre-school years offers the surest preparation for satisfactory personality adjustment during the whole of life" (Blatz & Bott, 1929, p. 299).

From these original thoughts, though firmly grounded in psychoanalytic theory, Blatz gradually developed his security theory, in first instance together with Chant, but over the decades it became increasingly clear that security theory was his own very personal contribution to psychology. Aspects like appetites, deputy agents, and stage models are undeniably Freudian, but Blatz never publicly acknowledged this and in many respects he was anti-Freud (Myers, 1969). Blatz differed from Freud in his opinion that thoughts or wishes could not possibly be unconscious; Blatz's appetites did not, like Freud's drives, have a common pool of libidinal energy; and the notion of 'appetite of change' was original and very important for his security theory since that appetite caused exploratory behavior, which in turn caused learning and the gaining of experience, leading to security. All through the 1930s and 1940s Blatz lectured extensively on his security theory but published little; he mentioned his theory in earlier writings (e.g., Blatz, 1934), but properly explained it in writing for the first time in his book *Hostages to Peace* (Blatz, 1940). It was not until 1944 that he devoted a complete chapter to the concept of security in his book *Understanding the Young Child*, in which he gave the following definition: "Security may be defined as the state of consciousness which accompanies a willingness to accept the consequences of one's own decisions and actions" (Blatz, 1944, p. 164). He went on to explain that a feeling of security could also be experienced if a person was confident that someone else would accept these consequences for him, in which case the security would be of the dependent kind.

Blatz stated that the developmental course of security is as follows. Children start off having to depend on their parents. This state Blatz called 'infantile or immature

dependent security'. As children grow older and begin to feel certain the parent is going to be there for them no matter what, the dependence becomes 'secure' and they will feel comfortable to go and explore the environment– i.e., to use the parent as a 'secure base'. Whilst exploring, the child will learn skills and gain knowledge necessary to depend on himself with confidence, so when he encounters a similar situation next time, he will know how to deal with it and thus feel secure. Ideally, this continuous exploration (or satisfying of needs, as the child will be driven by, for instance, his need for change) will result in development towards a state of 'independent security'. In achieving this state of independent security, Blatz emphasized the importance of a stable mother figure or mother substitute:

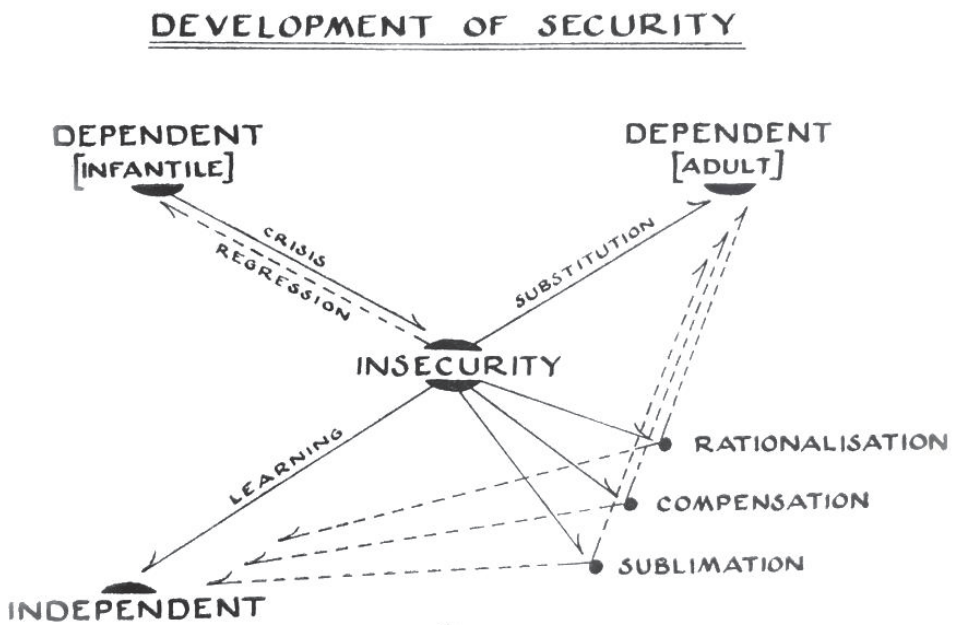
> At first, the familial intimacies of the child afford him ideal dependent security. Through the senses the child accumulates a wealth of experience of a stable nature. Taste, smell, touch, sight, and sound become familiar and form the stable part of the otherwise changeable universe into which the child may retreat. The accumulation of this experience is often overlooked by observers and often misinterpreted. The concepts of "mother" or "parent" are not present at this early stage: any person may serve as the origin of these experiences. It is the *stability* which is important if the child is to feel secure. Later on, as the child explores the experience of independent security, the stability of his familial intimacies becomes less important. He learns to accept the thrill of a new social life. (Blatz, 1944, p.181, original italics)

However, Blatz admitted that independent security can never be reached completely and in his later writings he stated that a combination of independent security and 'adult or mature dependent security' on friends and/or a partner is the highest achievable goal. Those who do not feel sufficiently secure or lack adequate skills may avoid the inevitable frustrations which exploration of the environment brings and, thus, may not learn to become secure and relatively independent persons. Rather, they remain 'immaturely dependent' or rely on so-called deputy agents like rationalization, compensation or sublimation (cf. Freud's defense mechanisms) in order to deal with their feelings of insecurity (see Figure 1). Because these defense mechanisms may not work in every situation, such individuals may develop mental or social problems.

According to Blatz, security is important in different spheres of a person's life: parent-child relations ('familial intimacies'), interpersonal relations outside the family ('extra-familial intimacies'), adjustment to work or school ('vocation'), leisure-time activities ('avocations') and religion or other beliefs ('philosophy of life').

When summarizing Blatz's position, three important ideas can be identified that are also main ingredients of later attachment theory. First, he considered the role of a stable mother (figure) during the early years very important for a healthy development of the child. Second, Blatz considered using the mother as a secure base from which to explore as one of the most important ways to reach a state of independent security.

Third, instead of trying to measure security on a continuous scale, Blatz identified different types or categories of security: independent security, immature (or infantile) dependent security, mature (or adult) dependent security, and pseudo-security: relying on deputy agents.



Development of Security (Blatz, 1944, p. 165)

Over the years, Blatz changed his security theory little. During the Second World War many members of the Toronto University staff joined the armed services in personnel selection, while Blatz spent some time in the UK to set up model wartime day nurseries. After his return to Toronto he picked up his work on security again. Together with Mary Ainsworth (then Salter), who, in the late 1930s, had been the first student to write her PhD project under his guidance on measuring security, Blatz continued to guide PhD students in developing an array of security measures (amongst whom Betty Flint, who developed the Flint Infant Security Scales; cf. Flint, 1959; 1974). A full and final account of Blatz's security theory was published posthumously (Blatz, 1966).

JOHN BOWLBY AND MOTHER-CHILD SEPARATION

Edward John Mostyn Bowlby (1907-1990) was born in a Victorian upper-middleclass family in London as the fourth of six children. Typical of their social class, the Bowlby children were raised in a distant, reserved manner. A nanny and several nursemaids were responsible for most of the upbringing of the children, who saw their parents only occasionally. Nursemaid Minnie took care of little John on a daily basis and when she left when John was only four years old, he was conceivably hurt by the event. Later Bowlby (1958a) stated that "for a child to be looked after entirely by a loving nanny and then for her to leave when he is two or three, or even four or five, can be almost as tragic as the loss of a mother" (p. 7).

Bowlby had a rather start-stop beginning of his professional career. In 1921, at age 14, he entered the Royal Navy College in Dartmouth as a navel cadet. Surprisingly enough, this is where he first came across the writings of Freud. Shortly afterwards, and possibly influenced by his father's work as a medical surgeon, he decided to leave the navy and pursue a career that "would improve the community as a whole" (Van Dijken, 1998, p. 46). He began studying medicine at Trinity College in Cambridge in 1925—eventually receiving his MD in 1933—but more and more he became "interested in psychology, especially what would now be called developmental psychology" (Senn, 1977, p. 1). In 1928, Bowlby bought and read Freud's *Introductory Lectures on Psycho-analysis* (1917), a book that he would later rank among the eleven most important books he ever read (Van der Horst & Van der Veer, 2010). But "apart from a medical background and an interest in psychology, [Bowlby's] choice of career had been determined by what [he] had seen and heard during the six months that [he] had spent in a school for disturbed children" (Bowlby, 1981, p. 2). Here, Bowlby referred to two so-called progressive schools where he volunteered in 1928 and 1929, schools that were heavily influenced by psychoanalytic thinking. Following Freud's reasoning of the potential detrimental effects of parental inadequacy, the psychological problems of the children at Priory Gate School—it was a school for "difficult" children—were as a rule attributed to adverse emotional experiences in childhood. So Bowlby was provided with an explanatory model for the maladaptive behavior of these children: the cause of mental disturbances and deviant behavior was deprivation of love in childhood. While working at these schools Bowlby was advised by a staff member to start psychoanalytic training, which he eventually did.

During the 1930s, Bowlby was trained as an 'orthodox' psychoanalyst at the British Psycho-Analytical Society, while concurrently working at several more 'eclectic' treatment facilities such as the Maudsley Hospital, the Scientific Treatment of Delinquency and the London Child Guidance Clinic (Van der Horst & Van der Veer,

2009a, 2010). As we have seen, the Child Guidance Clinics were a result of a Mental Hygiene Movement and they spread from the US to the UK in the 1920s. In his clinical work, Bowlby found that for most problematic behavior in childhood there was a cause in real-life, be it neglect, emotional or physical deprivation, or separation. One can imagine that his psychoanalytic analysis with Joan Rivière and Melanie Klein, who both emphasized that emotional problems were merely a result of "imaginings of the childish mind" (Riviere, 1927, p. 377), were inevitably going to lead to difficulty and conflict. Nevertheless, Bowlby finally qualified as full member of the British Psycho-Analytical Society in 1939 by reading a paper on the importance of real-life experiences in causing neurosis and neurotic character (published as Bowlby, 1940b; cf. Van der Horst, 2011).

So, in the late 1930s and early 1940s, Bowlby started to disseminate his ideas about the all importance of the early relationship between a mother and her young child. The ideas in his early papers show that he and Blatz were thinking much along the same lines. Bowlby wrote of "the immense emotional importance of home and family life" (Bowlby, 1940a, p. 186) and "the vital emotional background of security which even a bad home provides for a child" (Bowlby, 1939, p. 3). He considered "the emotional bond between child and mother [as] the basis for all further social development" (Bowlby, 1939, p. 3). But even though Blatz recognized the negative effects of mother child separation ("The sudden removal of a parent may leave a child feeling insecure and without a pre-learned pattern to relieve his insecurity" (Blatz, 1944, p. 168)), Bowlby put far stronger emphasis on the importance of physical separation experiences, and stated that the disruption of this bond could have severe consequences for later personality development. According to Bowlby, even minor separation experiences could endanger the healthy development of young children (Bowlby, 1960a). The rudimentary mechanism Bowlby described in one of his papers anticipated current ideas of attachment representation (cf. Main, Kaplan, & Cassidy, 1985) by several decades: "Gradually his confidence in and affection for his mother become generalised until he is able ultimately to develop friendly and happy relations with other grown-ups and other children" (Bowlby, 1939, p. 3).

In support of these more general assumptions, Bowlby was able to draw up a paper that reported on the early development of juvenile delinquents he had seen while working as a child psychiatrist. In *Forty-four Juvenile Thieves*, Bowlby (1944, 1946) compared the case histories of 44 thieves treated at the London Child Guidance Clinic with a control group of 44 non-thieves. Bowlby's (1940a) earlier prediction that a "broken mother-child relationship" in the first three years of life leads to emotionally withdrawn children was supported by these case histories: almost all of the emotionally withdrawn children who were prone to stealing—the so-called 'affectionless thieves'—turned out to have experienced major separations from their mother in the critical age period, whereas the children in the control group had not experienced separation from

the mother. On the basis of these findings, Bowlby concluded "that the socially satisfactory behavior of most adults is dependent on their having been brought up in circumstances ... which have permitted... satisfactory development of ... object-relationships" (Bowlby, 1944, p. 125).

The *Forty-four Juvenile Thieves* paper is sometimes considered as "the real key to the development of Bowlby's thinking," because Bowlby "noticed that many of the delinquent adolescents had disrupted childhoods and that put him on the trail" (Van der Horst et al., 2007, p. 322). Indirectly, it led to Bowlby's assignment with the World Health Organization, where he was asked to do a report on mental health problems of homeless children—a major problem after World War II (Van der Horst, 2011). It was another opportunity for Bowlby to test his hypothesis that "separation experiences are pathogenic" (Bowlby, Robertson, & Rosenbluth, 1952, p. 82). His extensive reading into the early work on deprivation and his travelling around the globe to consult international experts in both Europe and the US resulted in a monograph titled *Maternal Care and Mental Health* (Bowlby, 1951, 1952). Bowlby's general conclusion was that

> the evidence is now such that it leaves no room for doubt regarding the general propositions—that the prolonged deprivation of the young child of maternal care may have grave and far-reaching effects on his character and so on the whole of his future life. (Bowlby, 1952, p. 46)

So by 1950, just months before Mary Ainsworth would come to work at the Tavistock Clinic, Bowlby had firmly arrived at the position that early childhood separation had clear adverse effects, an idea that remained remarkably stable over time (Van der Horst & Van der Veer, 2010). However, a comprehensive theoretical framework explaining the child's need for a consistent mother (figure) was missing. Besides, Bowlby's findings were suggestive, based on retrospective studies, and not yet backed up by experimental research. Bowlby's acquaintance with ethology in the early fifties would enable him to base his findings on evolutionary theory and so provide a solid ground from which to work. At around the same time, Bowlby was introduced to Ainsworth, who came equipped with all she had learned from Blatz and his security theory. As we shall see, Ainsworth's role in the development of attachment theory would be of crucial importance.

AINSWORTH'S EARLY CAREER AND WORK WITH BLATZ IN TORONTO

Mary Dinsmore Salter was born in Glenville, Ohio, in 1913, the eldest of three daughters. In 1918 her father was offered a promotion, which made it necessary for the family to relocate to Toronto. After reading William McDougalls' *Character and the*

conduct of life (1928) Ainsworth[1] decided to study psychology and enrolled in the University of Toronto in 1929 at the age of 16. As an undergraduate, she took courses with Blatz and was for the first time exposed to his theory of development and security: "It was a theory of personality development, and that was what I had been waiting for!" (Ainsworth, 1983). After obtaining her BA in 1935 Ainsworth continued at the University of Toronto doing graduate work in psychology, and was appointed teaching assistant of Bott, while Chant offered to supervise her Master's Thesis on the relationship between attitudes and the emotional response, resulting in a publication (Salter & Chant, 1937).

After completing her Master's Thesis, Blatz asked Ainsworth if she would do her dissertation research under his guidance, developing an instrument to measure security in young adults. Impressed as she was with Blatz and security theory (which at this stage was still considered the joint work of Blatz and Chant), she was honored and accepted his offer. Ainsworth worked on her dissertation from 1936 to 1939, constructing self-report pencil-paper scales to be used in assessing the security young adults experienced in their relationships with parents and with friends (Van Rosmalen, Van IJzendoorn, & Van der Veer, 2014).

After receiving her PhD in 1939, Ainsworth was appointed lecturer at the University of Toronto. Shortly after, the Second World War started and as we have seen, Bott, Chant and Blatz left the university to contribute to the war effort. Ainsworth stayed on at the University for three more years, carrying on the work of the department together with several other recent female PhDs.

In 1942, Ainsworth was "no longer content to be away from where the action was" (Ainsworth, 1983, p.6) and joined the Canadian Women's Army Corps. After her basic and officer's training she was appointed personnel selection officer, having to recommend placement after administering tests and taking interviews. She moved through the ranks quickly and was promoted from second lieutenant to major within a year. During the winter of 1943-1944 Ainsworth spent four months in the United Kingdom, visiting the Personnel Selection Service of the British Army. After the war had ended Ainsworth worked as superintendent of Women's Rehabilitation in the Department of Veterans' Affairs, but within a year she felt that she had completed setting up the rehabilitation program and needed a new challenge. In 1946, Bott, who had by then returned to the University of Toronto, offered her an appointment as Assistant Professor, which she gladly accepted. In order to teach a course on personality assessment satisfactorily, Ainsworth found out everything she could about the Thematic Apperception Test, as well as about paper-pencil tests and projective tests in general. She

[1] Even though Ainsworth was called Salter until her marriage in 1950, to prevent confusion we will refer to her as Ainsworth throughout this article.

also attended a couple of workshops in the Rorschach technique directed by Bruno Klopfer, and wrote a booklet for her students to help with the study of the Rorschach Technique, of which hundreds of copies were sold. (Incidentally, as a result of this, in the early fifties Ainsworth would co-author *Developments in the Rorschach Technique, Volume 1* with Klopfer (Klopfer, Ainsworth, Klopfer & Holt, 1954)).

From 1946 to 1950 Ainsworth and Blatz co-directed a research team that was developing scales to assess security, expanding on Ainsworth's dissertation research by focusing on other aspects of life. Ainsworth then married a member of that team, Leonard Ainsworth, who wanted to continue for a PhD after completing his Master's Degree. Since Ainsworth had a faculty appointment in the same department, the young couple felt they had no option than to move elsewhere and in 1950 Leonard was accepted as a doctoral student in London at University College. The Ainsworths moved to the UK.

AINSWORTH'S MOVE TO LONDON AND COOPERATION WITH BOWLBY

In London Ainsworth received a tip from Edith Mercer, a UK-based war-time colleague, and applied for a position as Senior Researcher specializing in child development and projective techniques at the Tavistock Clinic, working for John Bowlby. As we have seen, Bowlby had been researching the effects of maternal separation during childhood on personality development, and was gradually forming a theory based on the findings. In contrast to Blatz's security theory, Bowlby's theory was at this point still under construction: "Blatz had been theory oriented, but my experience with Bowlby was my first with a theory in the making" (Ainsworth, 1983, p. 8).

Working with Bowlby made her realize that while in Toronto she had been studying young adults retrospectively, using tests and measures, it made much more sense to study infants or young children by doing direct observations (Meyers, 1969). Even so, next to her work with Bowlby, Ainsworth did continue her work with young adults on the Security Questionnaires she had started with Blatz for at least another decade (Van Rosmalen, Van IJzendoorn, & Van der Veer, 2014). One of the main projects Ainsworth worked on when in London at the Tavistock Clinic was provisionally named Current Studies 1. Together with Bowlby and James Robertson (1911-1988), a psychiatric social worker and psychoanalyst, she collaborated in a book project on infant-mother separation. The project was concerned with

> the emotional responses which can be observed when infants and young children are separated from their mothers for shorter or longer spans of time and with their behavior later when they return home. ... This book is written in the belief that the observations reported and the psychological processes discerned are of wider significance. This stems

> from our belief that the responses which characterize the young child's relation to his mother, whether he is with her or away from her, provide a template on which in some degree later social responses are modeled, especially those to love objects. (letter from Ainsworth to Bowlby, 1 August 1955)

Ainsworth was very impressed with Robertson's transcriptions of his observational notes and the method of direct naturalistic observation that was used for Current Studies 1 (Ainsworth, 1983). Robertson, famous for his 1952 film "A two-year-old goes to hospital", trained in observing and taking notes when he worked in Anna Freud's wartime nurseries during the second world war. But even though Ainsworth may have learned the value of direct observation in her work with Bowlby and Robertson, theoretically it was she who contributed important insights. Her influence was clearly visible from the start: in the first paper Ainsworth and Bowlby (1954) published together, titled "Research strategy in the study of mother-child separation", the term "attachment" was not yet used as a theoretical notion. Instead, Ainsworth and Bowlby consistently referred to a "secure dependency relationship", specifically naming Blatz as the founder of this concept:

> The basic hypothesis underlying separation research is that actual physical separation from the mother in early childhood, to the extent that it involves privation or deprivation of a relationship of dependence with a mother-figure, will have an adverse effect on personality development, particularly with respect to the capacity for forming and maintaining satisfactory object relations (Ainsworth & Bowlby, 1954, p. 6).

The choice of the term 'dependence' they explained in a footnote as follows:

> It is not easy to know which term is best used to describe this emotional relationship. Several have been proposed. [...] In this paper we are using the term "dependence" having been influenced in our choice by the concept of "dependent security" developed by Blatz, with whom one of us (MDA) has been closely associated. (ibid.)

Ainsworth worked with Bowlby at the Tavistock from 1950 to the end of 1953, when she followed her husband once again to another continent. However, as we will see, the collaboration between Ainsworth and Bowlby would continue until Bowlby's death in 1990.

AINSWORTH'S INDEPENDENT WORK IN UGANDA AND BALTIMORE

In 1954 Leonard found another job, this time in Uganda, and Ainsworth accompanied him to the African continent. Inspired by the separation work she had done with Bowlby, Ainsworth set up a study researching the responses of infants to separation at weaning. Traditionally, infants in Uganda were separated from their mothers to stay with their grandmothers for a time to facilitate weaning. However, as it turned out, this custom was no longer being followed and Ainsworth decided on the

spot to study general child development instead. While conducting the study she paid a lot of attention to the mother-child bond and to how this bond developed. In the meantime, she also carried on working on Current Studies 1, reviewing chapters and corresponding frequently with Bowlby and Robertson. As part of this correspondence, Ainsworth and Bowlby exchanged theoretical ideas and reflected on each other's ideas. They would easily type ten single-spaced pages in which they would set out their ideas for the other to mull over and comment on. As Bowlby was being drawn into ethology, he argued that the dependency need had an evolutionary basis, but Ainsworth was not convinced: "I must confess that I feel very undecided between Dr. Bowlby's implication that the dependency need in humans has an innate basis along ethological lines, and a somewhat more traditionally psychological explanation of the dependency need as a derived or acquired need, built up through the canalization and integration of a variety of needs on one object – the mother." (Ainsworth in a letter to Bowlby and Robertson, 12 March 1954). In fact, she later admitted that she had been worried that Bowlby, using Konrad Lorenz's (1935, 1937) work to argue against the still very popular psychoanalytical ideas, might ruin his reputation (Ainsworth & Marvin, 1995).

However, while studying the mother-child dyads in Uganda and seeing attachment develop, Ainsworth experienced a "paradigm shift": she made a transition from thinking in psychoanalytic terms to thinking in terms of ethology (Ainsworth & Marvin, 1995). Not long after she wrote to Bowlby: "By now I am quite won over to your notion of some primary basis for social needs quite over and above the physiological needs." (Ainsworth in a letter to Bowlby, 1 August 1955).

In 1955, after Leonard Ainsworth's two-year appointment in Uganda had ended, the couple moved to Baltimore where Leonard had found employment as a forensic psychologist. Ainsworth found a position as lecturer at the Johns Hopkins University. Ainsworth and Bowlby continued their correspondence and letters show that Ainsworth tried to make sense of the differences and similarities between security theory, dependency ideas and attachment ideas. She wrote to Bowlby:

> [I]t struck me that one interesting point about the dependency business is that there is by no means strict concomitance between the actual dependence of the child in terms of helplessness and his feelings of need for dependence (or attachment, to use your term).... the child who has no opportunity for attachment ... does not develop competencies at the normal rate, and continues longer in a more complete state of dependency than the normal child even though attached to no one. Moreover, the child who is insecure in his relationships to his mother, does not develop skills ... as well as the secure child, and thus insecurity in attachment may prolong the period of dependency. Moreover, insecurity in the relationship between child and mother may prevent the child from using what skills he has as a basis for relative independence... the child who is secure in his attachment is by the age of 2 1/2 or 3 years ready to rely on his competencies to a certain extent, to take pride in

> them, and to shrug off attempts to help him. (Ainsworth in a letter to Bowlby, 1 August 1955)

Even though they now resided on different continents, two years after their first article together, Bowlby and Ainsworth co-authored another article (Bowlby, Ainsworth, Boston & Rosenbluth, 1956). In this article, the term "attachment" was used for the first time, reflecting Bowlby's increasing interest in ethology and his notion that the child's tie to its mother was instinctive and evolutionary, and not merely driven by her seeing to his physical needs. "Dependency", which was previously ascribed to Blatz, was now referred to as a "common clinical term":

> Elsewhere (Ainsworth & Bowlby, 1954) we have discussed the problem of selecting the most suitable term to describe the young child's relation to his mother and there decided in favour of the common clinical terms 'dependent' and 'dependency', both of which have been used in this paper. The disadvantage of this terminology, however, is that it may imply that the young child's relation to his mother is a secondary result of her being the provider of food, warmth, etc. Since it seems equally likely that the relationship is primary we now prefer the more neutral terms 'attached' and 'attachment'. (Bowlby, Ainsworth, Boston & Rosenbluth, 1956, p. 237)

In the late 1950s and early 1960s there were several proposals to revise the 1954 article on Research Strategy, first to be published on its own, and then as an appendix to Current Studies 1. In a letter to Bowlby regarding the revision, Ainsworth suggested to replace all instances of "dependency" in the article for "attachment". Bowlby agreed to this (Bowlby in a letter to Ainsworth, 7 November 1960). However, even though the terminology changed, in correspondence to her former colleagues in Toronto Ainsworth repeatedly pointed out that for attachment, they could read "dependent security", and that although she had not continued work on the security measures, her focus had hardly changed and she was still concerned with the development of "immature dependent security". The biggest difference was that in Toronto her focus had been on young adults and she had considered her field to be clinical psychology, whereas now her focus had shifted to young children and she felt she was working in the field of child development, but

> as a good Blatzian, I am concerned with the balance between independent and dependent security. I have been astonished to find how early in the first year of life the first strivings towards autonomy and independence emerge. Attachment (dependent security) and autonomy develop concomitantly. At the end of the first year, it seems to be, the best measure of attachment (dependent security) is the extent to which the baby can use his mother as a secure base from which to explore the world – which, empirically, looks like independence. (Ainsworth in a letter to Mary Northway, 23 March 1965)

When Ainsworth sent a prepublication manuscript of "Attachment and exploratory behavior of one-year-olds in a Strange Situation" (later published as Ainsworth & Wittig, 1969) to Mary Northway, she again explained:

> I think your group might be interested in it especially since there is so much of it that relates pretty directly to Blatzian theory – if for attachment you read "dependent security" and for exploration you read "independent security". (Ainsworth in a letter to Mary Northway, 31 August 1965)

Thus, the influence of security theory was evident in Ainsworth's and Bowlby's first joint writings, but it also showed in articles written by Bowlby alone: "[T]he aim that the child should grow up to become confidently independent is synonymous with the aim that he should grow up mentally healthy" (Bowlby, 1956). Ainsworth's correspondence with her former colleagues in Toronto shows that even fifteen years after she had left, she felt that her work was still in tune with Blatz's ideas.

However, infusing Bowlby's theory under construction with Blatzian security ideas and terminology was not all Ainsworth did. Attachment theory contains at least three more of Ainsworth's contributions that play a paramount role in attachment theory, all of which show clear signs of Blatzian influence. As mentioned before, these were the theoretical notion of the balance between exploration and security, with the use of the mother as the 'secure base' (which Ainsworth in turn officially ascribed to Blatz), her methodological innovations (the measurement of the security of attachment by use of the Strange Situation Procedure and classification into A, B and C groups), and the concept of sensitivity as a precursor for security of attachment.

AINSWORTH'S CONTRIBUTIONS TO ATTACHMENT THEORY: THE SECURE BASE

The secure base was first mentioned in print in Ainsworth's dissertation (Salter, 1940): "Familial security in the early stages is of a dependent type and forms a basis from which the individual can work out gradually forming new skills and interests in other fields. Where familial security is lacking, the individual is handicapped by the lack of what might be called a secure base from which to work" (Salter, 1940, p. 45). Blatz had mentioned the importance of the mother as the person the infant could depend on when satisfying his need for change (one of the appetites mentioned above) by showing exploratory behavior during the phase of immature dependent security. If the infant felt secure, he would be interested in the world around him and move out to explore. If the exploring proved too much, the parent should be accessible so the infant could immediately go back to his "secure base", until reassured enough to venture out again. In her book on the Uganda study, which incidentally didn't appear until a decade after conducting the research, Ainsworth (1967) clearly used Blatz's notion of the secure base to interpret her empirical findings and emphasized, contrary to popular belief, (Shaffer

& Emerson, 1964a) that a strong attachment does not preclude but rather promotes autonomy. Although there are indications that Ainsworth told Bowlby about the secure base phenomenon during his visit to Baltimore in 1958 (Isaacson, 2006; Ainsworth & Marvin, 1995), she more fully explained herself in her comments on the manuscript of Bowlby's Volume II, Separation:

> I am gratified that you find "secure" and "security" useful terms – since I have been using them since 1936! And essentially in the same way. .... Harlow's infant rhesus thus flees to his "mother" as a haven of safety, but after having clung to her a while he can venture forth using her as a secure base. (Ainsworth in a letter to Bowlby, 10 April 1962)

She freely admitted getting the notion of the secure base from Blatz:

> It has been on my mind ever since to trace the "secure base" concept back in Blatzian writings. I suspect that it is entirely oral tradition...nowhere can I find a specific reference [in Blatz's writings] to the child using the mother as a secure base from which he can explore the world – although I feel as though I have had this concept for many years and that I learned it from Blatz. (Ainsworth in a letter to Harlow, 26 March 1964)

Ainsworth's notion that only the secure child would show independent exploratory behavior in a strange environment, using his mother as a secure base, inspired her to include this as an aspect to observe when designing an instrument to measure security of attachment, the Strange Situation Procedure.

AINSWORTH'S CONTRIBUTIONS TO ATTACHMENT THEORY: THE STRANGE SITUATION PROCEDURE AND CLASSIFICATION

The Strange Situation Procedure (SSP) is Ainsworth's best-known contribution to attachment theory. The SSP is a laboratory procedure to measure and classify the child's attachment to his or her caregiver. Even though almost all children become attached, the quality or security of this attachment relationship varies. The SSP prompts attachment behavior, which is then observed and classified. The laboratory procedure consists of eight episodes in which the child is first taken to a strange environment with its mother, after which a stranger enters, the mother leaves, and returns. It is then the stranger's turn to leave, after which the mother also leaves, and the child is alone in the room. In the final episodes, first the stranger returns, and then the mother. Special attention is paid to the child's exploratory behavior (is he using the mother as a secure base from which he can venture out and explore?) and his behavior during the reunion episodes. The sooner the child resumes exploration of the toys in the room after the mother returns, the more he is considered secure. More specific classification is based on the behavior of the child at reunion with the mother: attention is paid to whether he seeks contact and is put at ease quickly, or whether he tries to avoid contact, or is angry or acts in a disorganized way.

Even though Ainsworth's first publication on the SSP was in 1969 (Ainsworth & Wittig, 1969), ideas leading to her designing the instrument were already present early on (Van Rosmalen, Van der Veer, Van der Horst, 2015). Ainsworth herself has explained in interviews and articles how her early research in Toronto with Blatz , designing instruments to measure security in young adults, eventually led her to design the SSP (e.g., Ainsworth, 1983, 1988, 2010; Ainsworth & Bowlby, 1991; Ainsworth & Marvin, 1995; Myers, 1969; Rudnytsky, 1997; Stevenson, 1998). In the process of designing her early security scales, patterns emerged instead of a clear linear measure. She later stated that she had been looking for patterns ever since (Ainsworth, 1983). In the Uganda study the first official attachment patterns emerged, observed in 1954-55 but not published until 1967. The first time we see a categorization of patterns (at this stage called "personality patterns") in print is in her second article with Bowlby (Bowlby et al., 1956). Seven categories described the way the children "organised their object relations": A. Conforming, B. Over-dependent, C. Withdrawn and over-dependent, D. Ambivalent, E. Mother rejecting, F. Affectionless, and G. Superficial. A comparison was made with the children's adjustment scores, which rated from 1 (clearly well adjusted) to 5 (severely maladjusted). When comprising the results, three groups remained: a group of children showing positive feelings towards their mother (but differing in their confidence in this relationship), an ambivalent group, and a hostile or indifferent group – a rudimental version of the later SSP classifications.

Ainsworth's SSP categorization into secure and insecure attachment echoes Blatz's dependent and independent security categories. Bowlby had not used this kind of categorization before his cooperation with Ainsworth, and correspondence as much as ten years after publication of their second article shows that he still referred people to Ainsworth when they wanted to know more about the distinction between secure and insecure attachment (Izaakson, 2006). Ainsworth, on the other hand, was unlikely to have advanced the hypothesis that "the experience of separation may account in part for these different outcomes" if it wasn't for Bowlby's input (Bowlby et al., 1956, p. 242)

Many authors (Bretherton, 1992; Holmes, 1993, Van der Horst, 2011) have pointed out that the SSP played a fundamental role in the increasing acceptance of attachment theory. Rather than observing naturally occurring caregiver-child patterns for lengthy periods of time, it now seemed possible to typify the caregiver-child relationship within the time frame of 20 minutes. This quickly led to the SSP being widely used.

AINSWORTH'S CONTRIBUTIONS TO ATTACHMENT THEORY: MATERNAL SENSITIVITY

When it comes to sensitivity of the parent as a predictor for secure attachment, this is generally attributed to Ainsworth. As part of the Baltimore study, she identified

different dimensions of maternal care that seemed to predict infant-mother attachment security (Ainsworth, 1969; Ainsworth, Bell & Stayton, 1971). Earlier, Ainsworth talked about being "sensitive to the signals" of a child as timing one's "caretaking interventions in synchrony with the individual child's needs and rhythms" (Ainsworth, 1967, p. 394). As we have seen, Bowlby believed that it was essential for mental health "that the infant and young child should experience a warm, intimate, and continuous relationship with his mother (or permanent mother-substitute)" (Bowlby, 1951/1952, p. 11). Ainsworth, however, pointed out that maternal warmth and maternal sensitivity were not be confused, since maternal warmth is a characteristic of the mother, whereas sensitivity refers to an appropriate response to the baby's initiative. (Ainsworth & Marvin, 1995; Mesman & Emmen, 2013). In Ainsworth's view, attachment was indeed being formed by the (continuous) presence of the attachment figure, but the *security* of this attachment was being influenced by the sensitivity of the attachment figure.

As Bretherton (2013) has pointed out, Ainsworth might have first come across the terms "sensitivity" and "responsiveness" during her attendance of the 1959 Tavistock Study Group meeting, where Miriam David and Genevieve Appell posed the following question when presenting their case notes on the maternal deprivation of a two-year-old girl arriving at their institution: "Is the nurse sensitive and responsive to signals coming from the child or to the child's state?" (Appel & David, 1961, p. 132). However, Ainsworth's time with Blatz may well have planted the seeds of this way of thinking. In his parenting advice books, Blatz repeatedly emphasized the importance of being sensitive to the motives of the child's behavior: "We should enter the child's world by showing a patient, intelligent effort to unravel the child's motives, to put oneself in his place, to see the world from his point of view" (Blatz, 1931, p. 268). To ensure a happy adjustment of children and parents, Blatz urged parents to adopt an attitude of "pliability, patience, ingenuity and understanding" (Blatz, 1929, pp. 281-282).

Blatz also made clear that once you understood why a child reacted in a certain way, you should be responsive, as it were, by adjusting to the child. Overregulation by the parent would provoke tantrums, which Blatz considered a normal and legitimate way of protesting by the child. Conditions should be "adjusted to the child, instead of the child being made over to fit the conditions" (ibid., p. 229). Blatz felt that the effects were long-term: "The child who is persistently misunderstood or ignored is being thwarted more effectively than if we build a wall around him" (ibid., p. 230). Apart from being taught about this parental attitude by Blatz through his lectures, Ainsworth co-wrote an article on emotional episodes in the child of school age (Blatz, Chant, & Salter, 1937) in which this attitude towards children was clearly promoted, and parents and teachers were warned not to repress emotional behavior by mere discipline or

punishment, but to carefully look at the child's developmental stage and offer gentle guidance accordingly, facilitating the learning of adaptive behavior.

It is not surprising, then, that Ainsworth decided to pay attention to maternal behavior when studying the development of infant-mother attachment in Uganda and in Baltimore. For the latter study she designed maternal scales to measure acceptance-rejection, cooperation-interference, accessibility-ignoring and sensitivity-insensitivity. Of the last dimension she said: "The sensitive mother is able to see things from her baby's point of view" (Ainsworth, Bell, & Stayton, 1971, p. 41). Ainsworth found that sensitive mothers were more likely to have securely attached children. She also found that maternal responsiveness promoted desirable behavior, rather than spoilt behavior (Bell & Ainsworth, 1972). Even though the role of sensitivity is now believed not to be as decisive as was thought at the time (De Wolff & Van IJzendoorn, 1997), it nevertheless still takes a central role in attachment theory.

To summarize the above, we can conclude that Ainsworth contributed important elements of attachment theory, and that these in turn can in turn be, partly, attributed to Blatz.

CONCLUSION

Tracing back the origins of Attachment Theory, it is no longer fair to regard the theory as having been thought up by Bowlby with only some support of Ainsworth. While Bowlby, in the UK, studied the effects of mother-child separations in the 1930s and 1940s, Ainsworth in Toronto first studied under the guidance of Blatz, and then continued to work with him on the subject of security for many years. When Ainsworth started working with Bowlby at the Tavistock Clinic in London in 1950, she came well equipped. She brought with her extensive knowledge of Blatzian security theory, experience in designing instruments to measure security, and an awareness of the importance of a sensitive and responsive attitude towards children. It is difficult to imagine attachment theory without the notions of the secure base and exploration, the classification into secure and insecure attachment, maternal sensitivity, and attachment theory's prime instrument, the Strange Situation Procedure. Yet, these are the elements of attachment theory that we owe to Ainsworth and her use of all she had learned from Blatz over the years.

Up until Ainsworth's arrival at the Tavistock Clinic in 1950, Bowlby had been concerned mainly with physical separation studies. Only after he was introduced to ethology and to Ainsworth's (Blatzian) ideas in the early fifties, do we see many of the familiar ingredients of attachment theory emerge. In 1954, Ainsworth and Bowlby co-authored their first article, in which Ainsworth introduced the Blatzian term "secure

dependency". In 1956, in Bowlby and Ainsworth's second article, the term "secure dependency" had been replaced by a new term: "attachment". The reason given for this change of term was the connotation of "dependence" with the child's tie to the mother as a secondary drive, while Bowlby, by now embracing ethology and looking at the theory of evolution for explanations of attachment behavior, had started to realize that this tie was more likely to be a primary drive. In this same article we see the first attempt at categorizing security of attachment, at that point still called 'personality patterns' (Bowlby et al, 1956). In 1962, Ainsworth explained the notion of the secure base to Bowlby in a letter. In 1963, she started the Baltimore study in which she rated maternal sensitivity amongst other aspects of maternal behavior during home visits, and specifically studied the infants using the mother as a secure base during the Strange Situation Procedure, which enabled her to classify the attachment relationships of the children to their mothers into secure and insecure categories. In all of the above, we see the influence of Blatz. In fact, the SSP, attachment theory's prime instrument, clearly illustrates Ainsworth's 'merger' between Blatzian Security Theory and Bowlby's separation studies: first the child is being watched exploring, using the mother as a secure base (Blatz), then, after a brief absence of the mother, the reunion is being studied (Bowlby), after which the infant is classified as secure or insecure (Blatz).

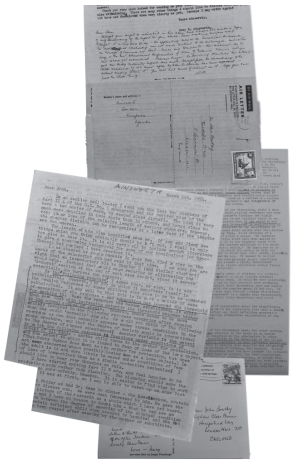
However, having put the contributions to attachment theory by Ainsworth, and indirectly by Blatz, into the spotlight, the fact remains that Bowlby's role in developing attachment theory was paramount. His search for an explanation of the detrimental effects of mother-child separations eventually led him to ethology, which enabled him to lay evolutionary theory at the base of attachment theory. Apart from that, one might wonder if all that Ainsworth brought with her from Toronto would have found fertile soil, if it weren't for Bowlby's theory in the making. While developing attachment theory, Bowlby and Ainsworth were mostly thinking along the same lines, and when they weren't, one usually managed to eventually convince the other. Their scientific relationship can be characterized as one of mutual enrichment and stimulation. They highly respected one another and helped each other grow by acting as each other's sounding board for years. Their continuous exchanging of ideas through correspondence between continents eventually made it difficult to point out exactly who thought of what first.

However, despite her enormous respect for Bowlby, Ainsworth stated that throughout her career, Blatzian ideas had always been at the roots of her thinking (Meyers, 1969). It is true that Blatz's security theory hasn't had the impact and usage attachment theory has. Security theory is not widely used these days and Blatz is not well-known to present-day developmental psychologists. In developmental psychology histories, Blatz and security theory are lacking (Winestock, 2010). Several factors may be to blame for this. Through the years Blatz lectured on his theory but put little in

writing. He did not often refer to other authors or researchers, and so did not embed his theory in contemporary research or connect it to other trains of thought. In general, Blatz was more concerned with the practical use of the theory, regarding it as a guiding principle, than with getting it published (Meyers, 1969). But even though Blatz's security theory has not become as well-known or as much used in contemporary psychology as has attachment theory, the present analysis shows that it was not lost. On the contrary, on closer scrutiny it turns out that much of Blatz's work was incorporated in attachment theory. Bowlby, Ainsworth and, indirectly, Blatz, all contributed to attachment theory in important ways.

ACKNOWLEDGEMENTS

All Ainsworth correspondence referred to resides in the Archives of the History of American Psychology at the University of Akron. All Bowlby correspondence referred to resides in the Wellcome Library in London, UK. All Harlow correspondence referred to resides in the Harlow Archives in Madison, Wisconsin, and was made available to us by Mrs Helen LeRoy. We are grateful to Mrs LeRoy for her assistance and hospitality.



Chapter 2

ABC+D of Attachment Theory: The Strange Situation Procedure as the Gold Standard of Attachment Assessment

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'So saying, glorious Hector stretched out his arms to his boy, but back into the bosom of his fair-girdled nurse shrank the child crying, affrighted at the aspect of his dear father, and seized with dread of the bronze and the crest of horse-hair, as he marked it waving dreadfully from the topmost helm. Aloud then laughed his dear father and queenly mother; and forthwith glorious Hector took the helm from his head and laid it all-gleaming upon the ground. But he kissed his dear son, and fondled him in his arms...'

(Homer, The Iliad, book VI)

INTRODUCTION

The Strange Situation Procedure (SSP) and its standard coding protocol (Ainsworth, Blehar, Waters & Wall 1978) have been used in numerous studies on antecedents and sequelae of infant attachment. In this chapter we present the SSP and its attachment classifications and we discuss some of the work done on the antecedents of differences in attachment security.

ATTACHMENT

WHAT IS ATTACHMENT?

Attachment is the emotional bond between a child and his protective caregiver(s). That bond becomes most obvious in times of fear and tension, for instance during illness, separation or other threatening danger. For regulation of these negative emotions a child feels when scared or tense, the young child depends on a wiser or stronger person who makes sure that negative emotions like fear or sadness don't overwhelm the child and block any (exploratory) behavior. The caregiver acts as a haven of safety, which causes the child to feel supported and allows it to grow. Attachment is seen in some shape or other in all cultures, and appears to be important in parent-offspring relationships of many animal species as well.

The importance of attachment should not be underestimated. The helpless baby depends on protection in order to survive. This protection is normally provided by its biological parents, because they want their offspring to survive. From an evolutionary viewpoint, attachment is important for the parents so they can hand over their genes to the next generation(s). Attachment theory is essentially an evolutionary theory, and John Bowlby (1973, 1988), the British child psychiatrist and founder of the attachment theory, felt strongly indebted to Charles Darwin.

Even though protection would normally be provided by the parents, a child can also get attached to other caregivers who are in regular contact with the child and make

it feel secure in times of need. A good example of a network of attachment relationships in which a child can grow up is found in the citation above – the beautiful description of the departure of Hector, given by Homer almost three thousand years ago in The Iliad. It clearly shows that attachment is not a new phenomenon in human history, and that it is not just about the bond between mother and child.

The way Hector says goodbye to his loving wife Andromache shortly after in the same scene illustrates the importance of attachment for adults. Bowlby (1973, 1988) looked upon attachment as a lifelong attribute of people and their relationships. At no point in our lives can we escape the need for closeness to a protecting and loving partner in times of fear and tension. The fact that separation hurts in adulthood makes it clear that we depend on attachment figures to help us face the challenges of life. Hector has to face the battle with the enraged Ajax who can easily take him on. Hector suspects his end is near and wants to see his wife and son once more to pick up the courage to enter the life-or-death battle.

Attachment relationships are extremely important for development. Children who grow up in an orphanage from birth, having to go without the availability of a specific caregiver as an attachment figure, are especially at risk of suffering from delayed growth and delayed motor, cognitive and social-emotional development (Van IJzendoorn 2008). Children that grow up in children's homes often have disturbed neurophysiological emotion regulation, which becomes apparent from the dysregulation of the production of the stress hormone cortisol (Gunnar & Vasquez 2001). Normally a child becomes attached to one or more caregivers, even if these caregivers neglect or maltreat the child. Obviously, the quality of the attachment relationship suffers in such cases, but even under these circumstances feelings of attachment persist (Cyr, Euser, Bakermans-Kranenburg & Van IJzendoorn 2010). Attachment is seen as a milestone in the development of a child and a condition for a balanced development of a person (Bowlby 1953). Early experience with attachment relationships is assumed to be a decisive factor for the way children are later able to create bonds with other people, their future partners or their own children, and how they see themselves in relation to the outside world (Bowlby 1988).

THE DEVELOPMENT OF ATTACHMENT

The tendency to become attached is inborn in every human child. It is the result of a millennia-long evolution in which it was favorable for survival and reproduction of humans to get attached to a stronger, protective person during the first year of life. Children are in fact born 'prematurely' because they cannot move themselves from one place to another, they cannot feed themselves or keep themselves warm, and depend totally on their social environment for survival. The idea that babies become attached to their mother purely because she provides them with food and fulfills their basic needs

cannot stand if we look at ethology. Young geese that have just crawled out of their eggs follow the first moving figure they see, even if that is not their mother but, for instance, the ethologist studying them. Konrad Lorenz has given lively descriptions of this phenomenon (Lorenz, 1952). Human babies, however, do not have an instinct which causes them to become attached to the first living being they encounter. They get attached to the person who takes care of them the most during the first few months of life. In most cases that is the mother, but it could just as well be someone else. Through directing its attachment behavior (crying, laughing, following) at a specific person, the child makes this individual feel responsible for him or her at times of imminent danger – a very efficient system to ensure survival in environments of evolutionary adaptedness (Bowlby 1969) that, for millennia, were far from safe.

FOUR PHASES OF DEVELOPING ATTACHMENT

Bowlby (1982) has described four hypothetical phases through which attachment would develop during the first few years of life. The first phase, orientation towards people without differentiating between them, starts with the preference of the baby for the human smell, the sound of the human voice, and the rough outlines of the human face. This phase starts shortly after birth and lasts for the first few months of life. During the second phase, orientation towards specific people in the child's environment makes the baby focus on people it sees regularly and whom he or she becomes familiar with. This phase can be observed in the second half of the first year. The baby develops a preference for one or a few specific people to whom the child becomes attached during the third phase, the phase of specific attachment (from age 10 months to 3 years). It will want to be around these attachment figures when frightened or stressed. During the fourth phase, the phase of goal-oriented attachment which starts around the third birth day, the child can take the perspective of the attachment figure and take his or her expectations into account with the development of plans, for instance when playing with unfamiliar children in an unfamiliar environment, during the first day of school. Even though the child will want the attachment figure to be around, it will also be prepared to wait until the caregiver is available again. Attachment, in this phase, has developed from a relatively solid behavioral pattern aimed at physical proximity, to a mental representation of a protecting and comforting caregiver who is available to the child when the child needs him or her. The phases are still hypothetical in the sense that the age ranges are educated guesses without a firm empirical foundation of longitudinal research.

NO CRITICAL PERIOD FOR ATTACHMENT

It has been said that age 0-6 years is the critical period for becoming attached. There are two reasons why this assumption cannot be right. First of all, it is near impossible for a child not to become attached. Children practically always become

attached and have great ability to recover. Even autistic children are attached to their parents, in spite of their social handicaps (Van IJzendoorn et al. 2007). Also, children who are being maltreated or neglected are attached, even though this is usually an insecure or disorganized attachment (Cyr et al. 2010). The exception to the rule may be children who grow up in crowded orphanages without regular caregivers – a situation that is deviant from an evolutionary point of view.

Secondly, a cutoff point at age six is not based on empirical research. Bowlby suggested on theoretical grounds that until age five, attachment is open to influences from the environment – good or bad – but that even after that, it is possible for corrective attachment experiences to help the child back on track to a secure attachment. Empirical research into the development of adopted children has proven Bowlby right. Age at adoption is important for development - adoption before the child's first birthday usually results in better development, including attachment quality, than adoption when the child is older. Similarly, children who are placed with foster parents at a later age are more difficult to bring up than children who are placed with foster parents a few months after birth. But this does not mean there is a critical period for human children to get attached, a time frame in which certain skills have to be learned, lest they disappear altogether.

There are sensitive periods in which it is easier to learn these skills and after which it will be more difficult to learn or unlearn them, but children possess the ability to make an amazing recovery once they find themselves in a safe and stimulating environment. This becomes evident from research with children who are being adopted from orphanages. The developmental leaps these children take in a relatively short period of time are enormous: from dwarfism to average length, head circumference and weight, and from mental retardation to a level of cognitive functioning that is 15 to 20 IQ points higher than at the time of arrival at the adoptive family. Something similar is possible in the area of attachment. It is true that, sadly, some children are scarred for life, but for the majority of adopted children the cognitive and physical differences between them and biological children are small and the adopted children manage to catch up at surprising speed (Van IJzendoorn & Juffer 2006).

ATTACHMENT OVER THE LIFE COURSE

Even though we have established that there is no critical period in which the attachment representation is supposed to take shape, most children, in interaction with their caregivers, develop a mental representation of attachment during the first five years of life. Bowlby (1973) calls this an 'internal working model' of attachment. However, this mental representation of attachment is not solid and unchangeable at age five. It is not an absolute and definitive model but a working model that continually

keeps processing information from the environment and keeps adjusting itself to the changing circumstances.

The attachment representation that arises during the first few years of life does appear to leave its traces in adulthood. Three longitudinal studies show strong relationships between the quality of attachment in the first year of life and attachment representations during adolescence and early adulthood. Main and Hesse (Hesse 1999), Waters (Waters, Hamilton, & Weinfield 2000) and Hamilton (Beckwith, Cohen & Hamilton 1999) found continuity in quality of attachment in 70 to 77% of cases of children in diverse populations. A secure attachment relationship with a parent at age one predicted a secure attachment representation in adolescence, 16 to 18 years later. These are robust data. It is particularly interesting to look more closely at the cases that did change. Waters and Hamilton showed that radical change of situation (for instance divorce of the parents, or serious illness) could predict changes in attachment representation. Knowing that, it is plausible that intervention or therapy can also produce such effects.

There are studies, however, that show less or no continuity. The most important of these is the Minnesota longitudinal study conducted by Sroufe and Egeland (2005) which could not find any notable continuity of attachment across the first 18 years of life in a high-risk group of children (poor, and with abused or sometimes abusing parents). However, this is less surprising when one realizes that this group of deprived children and families had to try and survive in very unstable social circumstances. This could be a group with a majority of children experiencing (radical) change of situation, which in turn may change attachment representation.

MEASURING ATTACHMENT

Even though virtually all children become attached, the quality of their attachment relationship differs. This quality of attachment can be observed in stressful situations where the caregiver is not immediately available to comfort the child. The Strange Situation Procedure (SSP) was designed by Mary Ainsworth (et al. 1978) and is a standardized simulation of a stressful situation. It has been in use for decades and is the best-known instrument for measuring infant attachment.

THE ORIGINS OF THE STRANGE SITUATION PROCEDURE

The SSP was not invented overnight. The roots of its development date back to the first half of the 20th century. Mary Ainsworth wrote her dissertation in 1939 under the guidance of William Blatz, often referred to as the Doctor Spock of Canada (Wright 1996). It is very possible that this is where her interest in what we now call attachment stems from. Blatz lectured on his security theory for years and wrote briefly about it in

his books, but only clearly put his complete theory in writing in his last book, Human Security, which was published posthumously (Blatz 1966). According to Blatz, a child starts off having to depend on his parents. If the child feels certain the parent is going to be there for him, no matter what, the dependence is 'secure' and the child feels comfortable to go and explore. The parent acts as a 'secure base'. The exploration will result in development towards a state of 'independent security', although Blatz admits in his later writings that independent security can probably never be reached completely, and that a form of 'mature secure dependency' on friends and/or a partner is possibly the highest achievable goal. In the meantime, some people will remain 'immaturely dependent' or rely on defensive mechanisms in order to deal with feelings of insecurity.

Ainsworth's dissertation was based on Blatz's security theory. She designed an instrument to measure security in (young) adults: an extensive questionnaire which she kept expanding and improving upon until 1958 (Ainsworth and Ainsworth 1958).

When Ainsworth followed her husband to London in 1950 she started working with Bowlby at the Tavistock Clinic, researching the effects on young children of being separated from their mother. Ainsworth assisted James Robertson with analyzing the detailed notes he made while observing young children during situations of separation, for instance in hospitals or in institutions (Bretherton 1992). By doing this she gained a great deal of experience in the analysis of observational data.

In 1953 Ainsworth followed her husband again, this time to Uganda. There, Ainsworth studied normative development and mother-infant interaction. She did this by observing 26 mothers with their child(ren) at their homes for a few hours every two weeks. She also conducted interviews with the mothers (Ainsworth 1967). When studying these mother-child dyads, she saw increasing evidence for Bowlby's theory about attachment being something that is based on interaction rather than on the mother providing food and other basic needs. Ainsworth left 11 years between finalizing data collection in Uganda and publishing the book about the study. She commented that 'the full significance of what I observed and recorded in my field reports emerged only gradually, not merely in the process of analyzing my observations, but also in the course of reading, discussions with others interested in mother-infant interaction, and further research into the early development of attachment.' (Ainsworth 1967: ix).

Ainsworth first presented the findings of her Uganda study at the Tavistock Mother-Infant Interaction Study Group in London in 1961. Here we see emerging for the first time specific criteria to determine if the infant had 'formed an attachment to his mother as a special person' (Ainsworth 1963). Ainsworth found that only looking at crying, following and clinging as reactions to (threatening) separation was not enough to establish the strength of attachment. The general opinion up to that point had been

that the securely attached child is the one who protests loudly at the departure of his mother, and/or clings to her. Schaffer and Emerson (1964b) for instance, stated that intensity of protest of the baby when separated from the parent was indicative of the intensity of attachment.

Ainsworth however, believed that it was the anxious child who needed close physical contact with his mother, and for whom maintaining interaction from a (small) distance, even part of the time, wasn't enough (Ainsworth 1964). After examining her field notes exhaustively Ainsworth came up with the following types of attachment behavior: differential crying, smiling, and vocalization, visual-motor orientation towards mother, crying when mother leaves, following, 'scrambling' over mother, burying face in mother's lap, exploration from mother as a secure base, clinging, and greeting by lifting arms, clapping hands, or approaching through locomotion.

When the Uganda book finally appeared in 1967, Ainsworth had divided the children in three attachment groups, or classifications: non-attached, secure-attached and insecure-attached. Classifications were based purely on observations in the home. Regarding the judgment of quality of attachment through the behavior of the child Ainsworth was now confident that a close attachment could develop simultaneously with increasing competence and independence. Again she pointed out that it was the insecure child who would cling to his mother and refuse to leave her. (Ainsworth1967: 447).

In 1963 Ainsworth started the Baltimore Study, in which she and her colleagues observed mother-infant interaction in 26 families during three-weekly home visits of about four hours each. The study was initially intended as a replication of the Uganda study. Data collection went on until 1966. Each infant-mother pair in this study was observed in a final session when the child was 12 months old. This final session, the Strange Situation Procedure, was originally designed to assess the child's use of the mother as a secure base, inspired by Blatz, as we saw before, but also by Harlow (1960a), who had observed monkeys, and by Arsenian (1943) who had observed preschool children. Both Harlow and Arsenian reported that the baby, once it had developed an attachment to its mother, used her as a secure base or a 'haven of safety' from which it would go out and explore, ready to face external threats without panic (Ainsworth 1964). At the same time, the child's use of the mother as a secure base could be seen as an indicator for attachment since Ainsworth regarded being able to use the mother as a secure base for exploration necessary for a healthy attachment.

The first report on the use of the Strange Situation Procedure (Ainsworth and Wittig 1969), describes 14 infants from the Baltimore study who were divided into three groups, based on their behavior during the Strange Situation: Group A, containing children that we would now classify as insecure-avoidant; Group B,

containing the securely attached children, and Group C, containing the children that we would now classify as insecure-ambivalent. Between the first results of the Baltimore study and the last results, Ainsworth moved from determining the quality of attachment from the behavior of the child during the mother's absence to the behavior of the child at the moment of reunion. Attachment classification in the Baltimore study was, however, not just based on the Strange Situation Procedure. The results of the extensive home observations were decisive for the final classification system of the SSP (Ainsworth et al. 1978).

THE STRANGE SITUATION PROCEDURE TODAY

The Strange Situation Procedure (SSP) as it is used today is exactly the same procedure Ainsworth used in the Baltimore study. It is a situation that children also experience in day-to-day life, for instance when visiting the doctor or the well-baby clinic, or during the first few visits to a day care center. During the SSP the child is subsequently confronted with a strange room (a play room), an unknown experimenter, and two short periods of separation from the caregiver (see below). Usually the behavior of the child is recorded on video and carefully coded afterwards. Special attention is paid to the episodes in which the caregiver is being reunited with the child after the brief separations. During those reunion episodes the behavior of the child shows how much it trusts the caregiver and how long it takes before the balance between exploration of the environment and focus on the parent or caregiver has been restored. The SSP is used for parents or caregivers and their 12- 72 months old children. The original coding system is used for children from 12-20 months of age, whereas for older children adapted coding systems are used, in particular the Cassidy/ Marvin system (Cassidy & Marvin, 1992) to take into account the broader representational and behavioral repertoire of these children.

The Strange Situation Procedure consists of eight episodes of about three minutes each in which the child is being observed:

1. The caregiver and the infant enter the room.
2. The caregiver and the infant are in the room.
3. A stranger enters.
4. The caregiver leaves the room. The stranger and the infant are together in the room.
5. The caregiver returns (first reunion) and the stranger leaves. At the end of this episode the caregiver leaves for the second time.
6. The infant is alone in the room.
7. The stranger comes back.
8. The caregiver returns (second reunion) and the stranger leaves.

Being separated twice from the caregiver in an unknown environment is stressful for children and prompts attachment behavior. Especially the way in which the child approaches the caregiver at the reunion, and seeks contact, or tries to avoid contact, is angry, or acts in a disorganized way, is of interest. That is why the behavior of the child during the two reunions is the decisive factor for the attachment classification.

THE ABC + D OF ATTACHMENT IN CHILDREN

A B C

Securely attached children (classification B, see below) are upset when they are being left alone by their attachment figure in an unknown environment. Many (but by no means all) securely attached children are clearly upset, cry, and look for their caregiver. Their exploration and play come to a standstill. When the caregiver returns, these children will openly show their feelings of distress and will immediately start looking for reassurance and comfort from the attachment figure, but after a short while they will be able to go back to playing and exploring. Their curiosity about the nice toys in the playroom will prevail over their longing for immediate proximity to the caregiver. Securely attached children possess a basic trust – a general sense that the world is predictable and reliable – which is formed over time by a sensitive and comforting caregiver.

Children classified as insecure avoidant (attachment classification A) experience stress during the SSP, as becomes apparent from their accelerated heartbeat, but they will not show this stress to the caregiver. When the caregiver returns, they seem to be engrossed in play and they seem to want to avoid being close to the caregiver. In the meantime, however, the child is actually watching their caregiver in an unobtrusive way, and after a while she/he may look for some contact and closeness, still not showing any negative emotions. It is probable that this is a result of earlier, similar experiences in which the child's negative emotions were rejected by the caregiver. These caregivers are normally capable of dealing with positive emotions of the child, but feel at a loss or even threatened by their child showing feelings of stress or sadness. This, in turn, may be due to their own experiences as a child with a caregiver who ignored or rejected their feelings of stress or sadness.

Children classified as insecure-ambivalent (attachment classification C) do the opposite and emphasize their negative emotions, for instance by crying loudly, and they continue to do so when the caregiver returns. They desperately try to get close to the caregiver and want to be picked up and sit on their lap. But at the same time they seem to want to show the caregiver their disappointment in having been left alone in a strange situation full of unknown threats, even for a short time. They grab hold of the

caregiver but at the same time push him or her away, hence the term "ambivalent". While the insecure-avoidant children suppress their negative emotions, the insecure-ambivalent children let their tears run freely. Their experience has taught them that they can only get the caregiver's attention by screaming loudly or by making it obvious in other ways that they need to be comforted by a grown-up. The caregiver may have been inconsistently sensitive and available to the child, possibly because of previous experiences and problems during his or her own childhood.

The three main classifications of attachment have been divided into subcategories in order to do justice to the variety of behavioral patterns within each main classification. An 'angry' insecure-ambivalent child shows totally different behavior from a 'passive' insecure-ambivalent child, but both belong to the same main classification and both have the same background with regards to their upbringing by their caregivers.

A1 Avoids the caregiver in a conspicuous way during the episodes of reunion (for instance by ignoring him or her, by fixing its attention on toys, by turning away or crawling away). Does not attempt to approach the caregiver, or stops halfway. When being picked up by the caregiver makes no attempt to maintain contact. The stranger may be being approached in the same way as the caregiver.

A2 Greets or approaches the caregiver, but this greeting or approach is mixed with a tendency to turn around, or turn away, or to ignore the caregiver. There may be some tendency to maintain contact, but the context of avoidance remains predominant.

B1 Greeting at reunion takes place through positive interaction from a distance rather than approaching and seeking bodily contact. Little attempt to maintain contact when picked up. Little sadness during separation, and maybe some avoidance during reunion.

B2 Inclination to approach and greet caregiver, but hardly any attempts to make bodily contact. Some possible avoidance at first reunion, but no avoidance at the second reunion. No striving to maintain contact when picked up.

B3 Actively seeks bodily contact at reunion and actively tries to make it last. Seeks comfort, which is given by the caregiver until the child is at ease again, and goes back to exploring the environment in the presence of the caregiver. Very little avoidant or resistant behavior.

B4 Clearly seeks contact, especially during reunions, but contact seeking and maintaining are less explicit and less effective than the contact seeking of B3 children. Derives insufficient security and comfort from the presence of the caregiver to be able to explore independently after a period of separation. May show some resistance towards the caregiver, and can only really be comforted on the caregiver's lap.

C1 Specifically seeks closeness and contact during reunions, mixed with distinctly resistant, angry behavior. Experiences a lot of distress during periods of separation. Will often not get back to playing independently.

C2 Is extremely passive, with very little exploration in any episode, and little contact seeking or maintaining. Cries to show the need to be held. Resistance is not as strong as with the C1 children, but remains upset all through the reunion period, even if in bodily contact with the caregiver.

The various main classifications (ABC) have been studied rather thoroughly and sufficient psychometric validation has been conducted to be sure of their status as descriptors of child-parent attachment relationships. The sub-classifications, however, did receive very little empirical attention as yet, because it is difficult to get sufficient numbers of children classified in each of the categories for the purpose of validation. Also, it appears to be difficult to establish sufficient chance-corrected intercoder reliability on the sub-classifications in relatively normal, non-clinical populations. This problem is in no way unique for the SSP sub-classifications but is inherent to any coding system with too many categories. The SSP subcategories are helpful when coding complex behavior patterns but do not (yet) have the status of individual classifications of attachment with predictable and specific determinants and effects.

Children who are securely attached, but also children who have an insecure-avoidant attachment or insecure-ambivalent attachment, display an organized strategy to maintain interaction with the attachment figure. Insecurely attached children use resistant or avoidant behavior to realize as much closeness to the potentially protecting caregiver as possible, even though their attachment relationship does not fulfill all their needs.

A B C + D

However, as well as a secure, insecure-avoidant or insecure-ambivalent classification, children can get a disorganized (D) classification as discovered by Main and Solomon (1990). The essence of disorganized attachment is that the child is at times scared of the attachment figure, even though the attachment figure is at the same time their only source of protection and safety. This is an insoluble paradox that causes the child to behave in a disorganized way (for instance when the caregiver returns, the child may come to a complete standstill for 30 seconds or so, as if it is frozen, see below for more indicators). Disorganized attachment is not permanently visible and sometimes only becomes apparent from short episodes in the SSP.

Disorganized attachment always goes hand in hand with an 'organized' type of secure or insecure attachment, which is considered the basic attachment classification of the child. There are indications that especially insecure-avoidant or insecure-ambivalent attachment types combined with disorganized behavior causes psychological and behavioral problems (Schuengel, Bakermans-Kranenburg & Van IJzendoorn 1999).

Indicators of disorganized behavior in the Strange Situation Procedure in children of 12-18 months, when the caregiver is present are the following (Main & Solomon 1990):

- Simultaneous display of contradictory behavior (for instance, the child approaches the caregiver with its back towards him/her)
- Sequential display of contradictory behavior (for instance, the child approaches the caregiver but just before reaching him/her, it turns around)
- Undirected, misdirected, incomplete, or interrupted movements or facial expressions, stereotypies, asymmetrical movements, mistimed movements, anomalous postures
- Freezing, stilling, and slowed movements and expressions
- Direct signs of apprehension towards the caregiver
- Disoriented behavior, especially at the return of the caregiver

DETERMINANTS OF DIFFERENCES IN ATTACHMENT

The bulk of studies looking at attachment in non-risk populations shows that about two thirds of children are securely attached, one fifth have an insecure-avoidant attachment classification and about one tenth an insecure-ambivalent attachment classification. On top of that, about 15% of children are classified as disorganized. What causes these differences? Each child has an inborn inclination to become attached but not every child becomes securely attached. Is this due to genetic make-up, or is parenting the deciding factor? And is a child attached in the same way to all his caregivers: mother, father, and other caregiving adults like caregivers at the day care centre?

THE EFFECTS OF PARENTING

One of the more bold statements in attachment theory is that parenting is crucial, especially the way in which caregivers are sensitive in interacting with the child. Ainsworth (et al.1978) described sensitivity as the ability to notice attachment signals of the child in time, to interpret them correctly and to react to them promptly and adequately.

Research shows that sensitive caregivers do indeed more often have securely attached children. In a large meta-analysis, De Wolff and Van IJzendoorn (1997) found an effect size of about r=.24, or half a standard deviation. That is a robust effect and it justifies the conclusion that sensitivity of caregivers determines at least in part the quality of the attachment relationship with the child.

The fact that parenting is extremely important to the quality of attachment also becomes obvious when we look at the large number of properly designed intervention studies (with random allocation to the intervention group and control group). These interventions aim at changing the behavior of the caregivers, and if as a result of this

change, the attachment quality of the children changes as well, the causal relationship between sensitivity and attachment has experimentally been proven. In a large meta-analysis looking at all interventions aimed at improving sensitivity and attachment, Bakermans-Kranenburg, Van IJzendoorn & Juffer (2003) showed that in this respect attachment theory stands up to scientific scrutiny. When parents or other caregivers become more sensitive, chances for their children to be securely attached increase. Sensitivity of the caregiver is therefore a determinant of the quality of attachment relationship with the child. Nevertheless, a 'transmission gap' between parental attachment representation and child attachment has been documented to exist (Van IJzendoorn, 1995). Security of attachment in the parent leads to higher levels of sensitivity to the child's signals which in its turn leads to a more secure relationship between the child and the parent. Parental sensitivity thus mediates the association between parental and child attachment. But the mediation is incomplete, and only part of the intergenerational transmission of attachment seems to go through sensitive parenting. Other factors might play a role, such as other dimensions of parenting (for example support of exploratory behavior) or genetic similarities between parent and child (Van IJzendoorn, 1995).

THE EFFECTS OF GENES

Other studies have looked at genetic effects on attachment. Studying just one child in a family cannot answer the question which of the two is the determining factor: genes or environment (Harris 1998). To be able to unravel the influence of genetic determinants and determinants of parenting, you need two children per family, preferably twins, who are either genetically identical (monozygotic) or who share on average half of their genes (dizygotic). A twin study conducted in Leiden (Bokhorst, Bakermans-Kranenburg, Fearon, Van IJzendoorn, Fonagy & Schuengel 2003) showed no effect of genetic differences on the type of attachment these children had with their father or mother. Shared environment and unique environment however, were important, which is what attachment theory predicts.

The fact that attachment is not dependent on the child's genes also becomes clear from research into attachment networks. Most children do not grow up with just one caregiver. Sarah Hrdy (2009) shows that from an evolutionary viewpoint it would have been impossible for single mothers to bring up their children without the help from family or group members. Even just the amount of food necessary for a newborn baby to grow into a relatively independent teenager is so extremely large that one single adult could never get this together. Evolution has shaped the biological mother to share the upbringing with others, and the child has been shaped to accept other caregivers as attachment figures that can provide food and protection when the biological mother is absent. This is also the case if the mother has passed away. The risk of dying in the

'original environment of evolutionary adaptedness' (Bowlby 1969) was obviously much larger than in today's industrialized world.

THE ATTACHMENT NETWORK

Children can get attached to any caregiver in their environment who makes the effort to spend time with them on a regular basis. In our modern world too, a child builds up an attachment network with mother, father, caregiver at daycare, grandparents and other caregivers, and every one of those attachment relationships is a unique result of interactions with the child. Goossens and Van IJzendoorn (1990) found in a first study into the network of attachment relationships with father, mother and caregiver at daycare that a child can get attached in every possible way to each person from the network, depending on the quality of the interactions with that person. A secure attachment to mother is no guarantee of a secure attachment to father or caregiver at daycare. This shows that attachment does not depend on a biological tie with the attachment figure nor on provision of food or physical care. Sensitive interactions cause a child to become securely attached. As a child develops, the separate attachment relationships it has built up with the different caregivers melt into one integrated cognitive representation of attachment, which becomes apparent through the Adult Attachment Interview (Hesse 2008). When and how this merger takes place is as yet unclear, but it is an intriguing subject for longitudinal research.

ATTACHMENT AND CHILD MALTREATMENT

DISORGANIZED ATTACHMENT

At the moment, attachment is one of the key concepts in intervention programs for deprived, neglected and/or maltreated children (for reviews see Bakermans-Kranenburg, Van IJzendoorn & Juffer, 2003, 2005; Berlin, Ziv, Amaya-Jackson & Greenberg 2005; Oppenheim & Goldsmith 2007). Focus is in particular on disorganized attachment (D classification), the most anxious type of attachment. Disorganized attachment seems to be caused mainly by frightening or frightened and extreme insensitive behavior of parents (Hesse & Main 2006; Lyons-Ruth, Bronfman, & Parsons 1999; Main & Hesse 1990; Schuengel et al. 1999).

As mentioned earlier, disorganized children are caught in an irresolvable situation: their attachment figure and source of comfort and safety is at the same time threatening and a source of fright (Hesse & Main, 2006). Recent studies with children who were not neglected or maltreated, support this hypothesis. They show that abnormal behavior of the parent, for instance when the parent suffers from temporary

dissociation, assumes an attack position, speaks or shouts in a booming voice, handles the child roughly, or shows extremely introvert behavior as in a still-face procedure, evokes disorganized attachment behaviour (for a meta-analytic review see Madigan, Bakermans-Kranenburg, Van IJzendoorn, Moran, Pederson & Benoit 2006).

Neglect and maltreatment are extremely frightening for a child. In families with neglect and maltreatment, relationships between parent and child are dysfunctional. These parents set boundaries in a notably inadequate way: they more often use threats, punishments, force and power to get the child to cooperate (Chilamkurti & Milner, 1993; Loeber, Felton, & Reid 1994). Mothers who maltreat their children show more rejecting and controlling behavior towards their child, while neglecting mothers are mainly inconsistent in their reactions and cannot set boundaries that fit with the age of the child (Bousha & Twentyman 1984; Crittenden 1981). Both these hostile and helpless behavioral patterns have been observed by Lyons-Ruth and colleagues (1999) in mothers of disorganized children. These parents are not sensitive to feelings of fright in their child and are therefore not able to regulate these feelings or form a buffer for the child, while at the same time they evoke fear which activates the attachment system of their child. This in turn results in 'fright without solution', so often seen in maltreated or neglected children. This fright without solution is probably the most important process through which these children develop a disorganized attachment.

DIFFERENT WAYS TO DISORGANIZED ATTACHMENT

From the meta-analysis of Cyr and colleagues (2010) looking at the influence of maltreatment and other risk factors for attachment, it appears that children with at least five parental social-emotional risk factors (low income, single mother, adolescent mother, low education, ethnic minority, and/or substance abuse) have just as much chance of disorganized attachment as do children who have suffered neglect or maltreatment. Of course it is possible that in families with an accumulation of risks a lot of unproven or undiscovered cases of maltreatment exist. Another explanation could be that a different kind of parental behavior, as yet unidentified but of which the effects are as bad as those of maltreatment, causes the relationship between social economic risks and disorganized attachment in the child.

Research into frightened and frightening behavior of parents (Hesse & Main 2000; 2006) might shed light on the behavioral mechanisms that cause risk factors in the family to influence the development of disorganized attachment. Up to now we know that disorganized attachment comes into existence when the child is afraid of the parent. This fear hinders the development of an organized attachment strategy or causes the (temporary) disappearance of an existing strategy to use the parent as a safe haven at times of stress. Hesse and Main (2006) suggest that frightening behavior of parents can stem from unintegrated memories and emotions that are linked to traumatic

experiences, like loss or maltreatment. Parents who are surrounded by risks are more likely to have suffered loss or other traumatic experiences than parents in low-risk environments (Lynch & Cicchetti, 1998; Oravecz, Koblinsky & Randolph 2008). The child possibly reminds the parent of old traumas, which can cause dissociation - the parent tries to (unconsciously) detach him or herself from those same environments. This increases the risk of frightening or frightened behavior of the parent (for instance talking in a strangely high-pitched voice, freezing of all movement, acting as if the child is in control) which puts the child into the irresolvable situation of seeing its parent simultaneously as a safe haven and a threat, resulting in disorganized attachment.

Schuengel, Bakermans-Kranenburg, & Van IJzendoorn (1999) provided empirical support for this association. When direct maltreatment or neglect are absent, it seems possible that frightening behavior of the parent can be a key mechanism through which parents prompt disorganized attachment.

Apart from these speculative explanations there are two other conceivable pathways to disorganized attachment. In the first place, the attachment system of the child could be chronically hyper-activated if the parent withdraws from interaction with the child due to overwhelming personal or social-economical problems and daily pursuits. It is possible that children in high-risk families are dealing with a type of neglect that is inevitable in chaotic environments. Solomon and George (1999) expanded on the idea of 'fright without solution' and proposed that parents, who continuously fail to protect the child or fulfill its needs for attachment in stressful situations, will bring the child into an extreme and continuous state of fear. Eventually the child will come to the frightening conclusion that the caregiver does not offer a safe haven when the child needs protection, and that the caregiver will not fulfill its needs for proximity and protection (Madigan et al., 2006).

Along the same lines Lyons-Ruth and colleagues (1999) suggest that disorganized attachment does not only originate from frightening or frightened behavior of the parent, but also from extreme insensitive behavior of the caregiver. In their model, a lack of response (for instance withdrawal from interaction), or extreme insensitive reactions, like aggression towards the child, harsh discipline, lack of supervision in dangerous situations or ever recurring miscalculations in affective communication, can be just as frightening to the child as can behavior of the parent that directly prompts fear. In a sample of families at risk, including a number of maltreated children, it was found that both frightening behavior and extremely insensitive behavior were more characteristic for mothers of a child with a disorganized attachment than for mothers of a child with an insecure organized attachment. (Lyons-Ruth, Bronfman & Parsons, 1999; Lyons-Ruth & Jacobvitz, 2008).

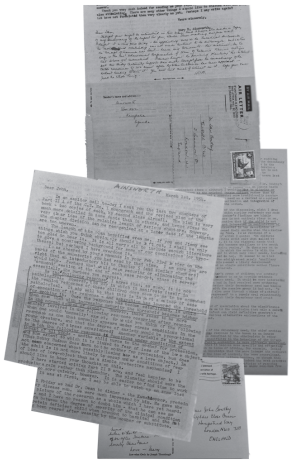
A second alternative pathway to disorganized attachment could be the increased chance children of families with multiple risks have of experiencing domestic violence (Cicchetti & Lynch 1993). Children who witness domestic violence, including violence by one parent towards the other, have a higher risk of having a disorganized attachment. Zeanah, Danis, Hirshberg, Benoit, Miller & Heller (1999) expect that witnessing parental violence will frighten a young child and make him or her worry about the wellbeing of the mother and her ability to protect both herself and the child against the violence.

In short, it looks like there are a number of non-exclusive ways that can lead to disorganized attachment: maltreatment of the child by the caregiver, growing up in a family surrounded by a combination of risks, unresolved trauma in a caregiver, or extremely insensitive behavior of the caregiver.

CONCLUSION

Early experience with attachment relationships is assumed to be a decisive factor for the way children are later able to create bonds with other people, their future partners or their own children. The tendency to become attached is inborn, and even children who are being maltreated or neglected become attached, although this is usually an insecure or disorganized attachment. No effect of genetic differences has been found, but the effect of parenting appears to be strong, especially the way in which caregivers are sensitive in interaction with the child. The attachment representation that arises during the first few years of life does appear to leave its traces in adulthood, but studies show that the environment can change the attachment representation. Attachment is presently one of the key concepts in intervention programs for deprived, neglected and/or maltreated children. Quality of attachment can be measured with the Strange Situation Procedure, originally designed by Mary Ainsworth to measure the infant's use of its mother as a secure base, and subsequently further developed into an instrument used to determine the attachment classification of young children.

The Strange Situation - far from strange to attachment researchers - has for decades been regarded as the gold standard for measuring attachment, and will most probably continue to allow us to classify attachment quality of infants for decades to come.



Chapter 3

Ainsworth's Strange Situation Procedure: The origin of an instrument

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ABSTRACT

The American-Canadian psychologist Mary Ainsworth (1913-1999) developed the Strange Situation Procedure (SSP) to measure mother-child attachment and attachment theorists have used it ever since. When Ainsworth published the first results of the SSP in 1969 it seemed a completely novel and unique instrument. However, in this paper we will show that the SSP had many precursors and that the road to such an instrument was long and winding. Our analysis of hitherto little-known studies on children in strange situations allowed us to compare these earlier attempts with the SSP. We argue that it was the combination of Ainsworth's working experience with William Blatz and John Bowlby, her own research in Uganda and Baltimore, and the strong connection of the SSP with attachment theory, that made the SSP differ enough from the other strange situation studies to become one of the most widely used instruments in developmental psychology today.

"So powerful is this technique in evoking behavioral changes that it is likely to be used with increasing frequency in studies of mother-infant interaction." (Ainsworth & Bell, 1970, p. 52)

Attachment theory is one of the better-known theories of contemporary developmental psychology. Its basic theme is that human infants need a consistent nurturing relationship with one or more sensitive caregivers in order to develop into healthy individuals. Inadequate relationships are considered to contribute to aberrant behavior and in combination with other risk factors to psychopathology. The theory was gradually developed by the British psychiatrist and psychoanalyst John Bowlby, together with American-Canadian developmental psychologist Mary Ainsworth, and comprehensively formulated in Bowlby's trilogy (1969,1973,1980), after which attachment theory steadily became more influential. The theory has now reached textbook status and its adherents have published thousands of studies inspired by this theoretical framework. Ethologist and Nobel Prize winner Niko Tinbergen has praised Bowlby for his "pioneering work" (Tinbergen in a letter to Ursula Bowlby, October 20, 1981), and Stephen Suomi, comparative psychologist and former PhD student of American Psychologist Harry Harlow stated that "the ideas about attachment that Bowlby developed into a formal theory are still in the mainstream of developmental psychology and child psychiatry, and are considered highly relevant in several other fields of clinical study. [...]. Attachment theory has basically stood the test of time over the past 50 years, and I believe it will continue to do so well into the future." (Suomi et al, 2008).

During the 70s and 80s, Bowlby was generally seen as the (sole) founder of attachment theory. However, as knowledge about the origin and development of the theory expanded over the past 25 years, Mary Ainsworth (1913-1999) increasingly gained credit as the co-founder of attachment theory. Ainsworth, an American-Canadian developmental psychologist, worked with Bowlby in London from 1950-1953. After her return to the US, Ainsworth and Bowlby carried on their collaboration until Bowlby's death in 1990. The importance of her contribution to attachment theory has been discussed in many recent publications. Van Dijken (1998), for instance, traced the core of attachment theory to Bowlby's early childhood and described the development of Bowlby's ideas in his early work while clearly stating Ainsworth's contribution. Bretherton (1992, 2003) described the theoretical development of attachment theory and argued that the fundamental expansion of attachment theory was made possible by Ainsworth's insights. Karen (1990, 1994) gave a compact overview of the history of attachment theory and Ainsworth's part in developing it, while

Isaacson (2006) gave an extended overview of the work of Ainsworth and Bowlby in her study on the development of attachment theory. Van der Horst (2011) devoted a separate chapter to Ainsworth's contribution to attachment theory in his biography of Bowlby. Kenny (2013), in her book on principal theories of infant development, named both Bowlby and Ainsworth as key figures in the development of attachment theory. Recently, a special issue of *Attachment & Human Development* was dedicated to Ainsworth's contribution to attachment theory (Grossmann, Bretherton, Waters & Grossmann, 2013).

One of Ainsworth's major contributions was the development of a laboratory procedure to measure and classify the child's attachment to his or her caregiver. Many authors have pointed out that this procedure, the Strange Situation Procedure (SSP), played a fundamental role in the increasing acceptance of attachment theory. Holmes (1993) for instance, stated that the SSP was essential in providing empirical evidence for Bowlby's ideas. Rather than observing caregiver-child patterns for lengthy periods of time, it now seemed possible to typify the caregiver-child relationship within the time frame of 20 minutes. Researchers were quick to see this advantage and today the SSP is widely used - a simple search in Google Scholar gives over 14000 citations (more than 4000 of which since 2010) for Ainsworth et al.'s 1978 book *Patterns of Attachment* which provides the most complete guide to scoring the SSP. Ainsworth herself has explained in interviews and articles how her early research in Toronto, where she designed instruments to measure security in young adults under the guidance of William Blatz, and her later work in Uganda and Baltimore researching the bond between mother and child, eventually led her to design the SSP (e.g. Ainsworth, 1983; 1988; 2010; Ainsworth & Bowlby, 1991; Ainsworth & Marvin, 1995; Myers, 1969; Rudnytsky, 1997; Stevenson, 1998). The finer details of this development, however, remained unclear.

In the present article, we will add a new perspective to the historiography of the SSP and show that the situation was much more complicated than these accounts would make us believe. We will shed light on similar research that was being conducted all around Ainsworth, and had been for decades. We will show that there were many 'strange situation' studies, long before Ainsworth designed her SSP, and we will discuss the possible reasons why Ainsworth's SSP turned out to be more successful than the instruments designed by her colleagues.

THE ORIGIN OF ATTACHMENT THEORY

The roots of attachment theory lie in the early twentieth century when Sigmund Freud's ideas became known in the Anglo-Saxon world and various experts promoted the study of the child. G. Stanley Hall initiated the Child Study Movement and

managed to recruit teachers and well-to-do mothers to collect knowledge about the development of children (Ross, 1972). For the first time, mothers were active as "co-researchers" and visited Mothers' Clubs or attended Mothers' Congresses to discuss "optimal" ways to raise children (Hulbert, 2003). Inevitably and increasingly, mothers were held responsible for the "outcome" of their efforts. Psychoanalysis, which rapidly became popular in the US after Hall had invited Freud to go on a lecture tour in that country (Rosenzweig, 1994), contributed to this idea. According to psychoanalytic theory, in the pressure cooker of the nuclear family the exact timing of the mother's interventions could mean success or failure for the child. Premature or delayed weaning and early or late toilet training could cause dreaded "fixation" and subsequent character malformation. Thus, according to this view, the origin of many later mental problems lay in early childhood, a view that psychoanalysis shared with behaviorism (Beekman, 1977; Stearns, 2003). The Mental Hygiene Movement, started in 1909 by the former mental patient Clifford W. Beers and the psychiatrist Adolf Meyer, shared much of this thinking (Richardson, 1989). By identifying early signs of maladaptation in childhood, experts hoped to prevent or cure mental illness. This led to the foundation in the early 1920s of so-called Child Guidance Clinics for the treatment of maladjusted children. Child Guidance Clinics employed clinical teams made up of a psychiatrist, a psychologist, and a psychiatric social worker. Inspired by psychoanalytic theory and, to a lesser extent, behaviorism, most professionals believed that the causes of deviant behavior and delinquency were to be found in the social environment and not so much in the child's genes. Sir Cyril Burt, for example, believed that "nearly every tragedy of crime is in its origin a drama of domestic life" (cited in Wooldridge, 1994, p. 99).

Burt introduced the idea of Child Guidance Clinics in England and it was while working at the London Child Guidance Clinic as a psychiatrist that Bowlby was able to learn about and put into practice many of the newer ideas. His belief that separation from the mother or mother-substitute is detrimental to the child he saw confirmed in many of the events connected to World War II (e.g., children who were evacuated without their parents, children who lost their parents) and in contemporary social policies (e.g., the limited possibility or even prohibition to visit sick children in hospitals). (Van der Horst, 2011). Combining clinical observations with theoretical insights and empirical evidence from the fields of psychology and ethology, Bowlby gradually developed his attachment theory as published in his well-known trilogy (Bowlby, 1969, 1973, 1980). His general message that children need a stable, and preferably full-time attachment relationship with a loving mother (or mother substitute) was well met after the war when many mothers did not work and raising children was viewed as a female responsibility (Riley, 1983; Wootton, 1959).

Bowlby was a theoretician who collected retrospective data about the possible detrimental effects on the child of a suboptimal mother-child relationship but he had

no instruments to do prospective research. The bulk of his conclusions were based on the effects of gross separations from the mother and the finer details of inadequate mother-child relationships could only be unearthed in time-consuming clinical research. It was here that Ainsworth's Strange Situation Procedure (SSP) came as a godsend. The SSP is a laboratory-based procedure (in this case a standardized simulation of a stressful situation) intended to reveal patterns of caregiver-child attachment. It quickly gained popularity among attachment researchers and is regarded to be a reliable instrument with good predictive validity (Solomon & George, 2008). The SSP is widely used these days and it has even been adapted to assess the bond between dogs and humans (Rehn, McGowan, & Keeling, 2013). Although numerous articles and chapters have been written about the SSP, little is known of its origin and history. Story has it that the Strange Situation Procedure was thought up by Ainsworth and her assistant, Barbara Wittig, in about twenty minutes (Inge Bretherton, personal communication, March 2, 2013). It may well have been. We will see that it did not, however, come out of thin air. Ainsworth's extensive experience in researching security and development of attachment, combined with a social background of increasing attention for mother-child relationships and their effect on child development, paved the way for the construction of the Strange Situation Procedure. The wish to intervene in the social environment of the problematic child created the need for a tool to measure the quality of the mother-child relationship and facilitated the quick and broad acceptance of the SSP.

DESCRIPTION OF THE SSP

According to attachment theory virtually all children become attached, but the quality of their attachment relationship differs and insecure attachment may result in developmental problems. The SSP, by prompting attachment behavior in the child, allows for classification of attachment security. The SSP as it is used today is basically the same as it was when Ainsworth first used it in her Baltimore Study (Ainsworth, Bell & Stayton, 1971; Ainsworth & Wittig, 1969) and consists of eight episodes. In episodes 1-3, the child (in the company of the caregiver) is first confronted with a strange environment (a play room) and then with a stranger (an unknown research assistant). During the fourth episode, the caregiver leaves the room and the infant is left with the stranger. The caregiver returns during the fifth episode and the stranger leaves. The caregiver then leaves again (episode 6), which means the infant is alone in the room. The stranger returns (episode 7), and eventually the caregiver also returns (episode 8). In order to avoid effects of different parental behavior during the SSP as much as possible, the caregiver is asked to respond to the child only when necessary and not to initiate any interaction. Originally, the SSP was observed through a one-way window and observations were dictated simultaneously by at least two observers. Nowadays, the behavior of the child is captured on film and coded afterwards.

The three components of the SSP (the strange environment, the stranger, and the separations from the caregiver) make it stressful for children and prompt attachment behavior. Special attention is paid to the episodes in which the caregiver is reunited with the child after the brief separations. During these episodes (5 and 8) it is estimated how much the child trusts the caregiver by looking at the child's behavior and at how long it takes before the balance between exploration of the environment and focus on the parent or caregiver has been restored. The way in which the child approaches the caregiver at the reunion and seeks contact, or tries to avoid contact, is angry, or acts in a disorganized way, is decisive for the attachment classification. Children's attachment to their mother can be classified as secure (B), insecure avoidant (A), insecure ambivalent (C), or disorganized (D).

Strong claims regarding attachment's continuity over time, its impact on later development, and claims regarding maternal sensitivity as the most important precursor of Strange Situation behavior have not been unanimously supported by the scientific literature of the last 40 years, however (cf. Groh, Fearon, Bakermans-Kranenburg, van IJzendoorn, Steele & Roisman, 2014; Lamb, Thompson, Gardner, Charnov & Estes, 1984; Vicedo, 2013). Ainsworth herself later expressed regret at the fact that the SSP had ended up as a stand-alone instrument, often being used as a short-cut method, instead of being used in combination with home observations (Ainsworth & Marvin, 1995). Nevertheless, regardless of its possible limitations, attachment researchers value the SSP as an important instrument and have embraced it as a prime measure of attachment. In addition, many of the adult attachment researchers that started to design their own instruments in the 1980s used the SSP as a model to work from (Van Rosmalen, Van IJzendoorn & Van der Veer, 2014). If we want to explore the historical roots of this widely used instrument we need to go back a century.

PREHISTORY OF THE SSP

Against the backdrop of increasing interest in the mental health of children in the early twentieth century, a considerable amount of research was being done regarding fear in children. Researchers tried to find out what caused children to be afraid and studied their reactions or tried to find methods to overcome these fears (Jersild & Holmes, 1935). Hagman (1932), for instance, studied the overt behavior of children taken into a room, left alone, and subjected to a phonographic recording of artificial thunder as a possible fear stimulus. The psychoanalytic focus on separation anxiety caused interest in the influence of an unknown environment on the child's behavior and/or the effects of separation from the mother. Nancy Bayley (1932) reported on an observation of 61 infants that underwent a range of tests, during some of which it was

necessary to be briefly separated from the mother. Bayley put their crying down to, amongst other things, the "strangeness of place and persons" (p. 316).

The first time we see a detailed description of the reactions of children specifically to a strange person in a strange room, and the behavioral patterns in which the fear is manifested, is in an unpublished study conducted in the early thirties called "The behavior of the child in strange fields" by F. Wiehe, a student of Kurt Lewin (Lewin, 1935). Lewin, famous for, amongst other things, his Force Field Analysis which looks at the factors that influence a situation, stated in 1933 that "the presence or absence of the mother changes the total structure of the psychological environment very essentially, especially the child's feeling of security or insecurity" (Lewin, as cited in Bretherton & Munholland,1999, p. 97). Wiehe studied children's behavior towards a stranger as they were taken into a strange room, sometimes accompanied by their mother, sometimes alone, or a strange person was brought into the child's home. He then observed the actions of the child towards the stranger by noting down the presence or absence of fifteen possible actions (listen to, look at, turn bodily toward, smile at, speak to, address to, express wishes, give or throw something, make bodily contact, stay nearby, ask personal questions, demonstrate ability, show off, make demands, affective reactions) at six different degrees of "strength of the social field". This degree of strength was a function of the spatial distance to the stranger, the duration of his presence, and his conduct. Wiehe found the strongest pressure resulting in the child becoming motionless, and a weaker degree of pressure causing the child to cry or to run away or towards his mother. The less pressure on the child, the more natural free behavior was shown. Wiehe's study was the first that didn't just note that strangeness caused fear in the child, but also paid attention to how this fear was expressed in the child's exploratory behavior. Being a student of Lewin, he analyzed the child's behavior in topological terms (i.e., in terms of forces and valences present in a specific situation or "field"), just like Arsenian, another student of Lewin, would do several years later.

In the early forties, Prichard and Ojemann (1941) noted that 'insecurity' was frequently listed among the possible causes of behavioral problems and called for clarification of the terms 'security' and 'insecurity', and for a uniform way to measure them:

> Careful analysis of the literature reveals that there is little agreement as to the meaning of these terms and that methods of identification and measurement of insecurity are not well developed. [...] It would be most helpful if we could develop more precise methods of classifying children with respect to the strength or frequency with which this desire motivates their behavior. We need methods by which we can discriminate between the relatively secure and the relatively insecure children (Prichard & Ojemann, 1941, p. 114).

By comparing two groups of preschool children aged two to five, one group labeled 'secure' and one labeled 'insecure' by their respective teachers, Prichard and Ojemann

developed a security rating scale based on the behavior of children in a preschool environment.

In the late 1930s, Mary Shirley and Lillian Poyntz were curious to the effects of modern American life on children, since an increasing number of mothers were employed outside the home and nursery schools spread rapidly, when at the same time they felt that "the young child's sense of security and well-being is founded upon his experience of mother love and care" (Shirley & Poyntz, 1941, p. 251). They published a detailed description of the effects of the absence of the mother on her child during health and developmental examinations as part of a longitudinal study into child growth. The 199 children concerned, aged two to eight years, underwent half-yearly routine medical checks at the Harvard School of Public Health between 1936 and 1940. Most of these children would normally spend their days at home with their mothers. As they were left by their mothers at the Center for Research on Child Health and Development for the whole day, this allowed for issues of separation to be studied. Apart from looking at the behavior of the child throughout the day, special attention was paid to the separation and reunion episodes, and what they might imply. As the authors argued: "The real significance of the mother's good or poor handling of the parting, however, lies in the fact that it is usually an accurate indicator of the entire mother-child relationship" (ibid., p. 268). The questions they asked about the reunion were very similar to the ones asked decades later in the SSP: "How do they greet the mother at the end of the day? What type of mother-child relationship do these reactions imply?" (ibid., p. 253). Psychoanalytic influence was clearly visible: the authors remarked that a child might be quiet in the mother's absence, but that this apparent quietness "may hide devastating undercurrents of fears and doubts" (ibid., p. 252). Just like Ainsworth would do in her Uganda and Baltimore studies, Shirley and Poyntz ascribed part of the children's behavior during their mother's absence to previous adequate or inadequate maternal behavior and aspects of the home situation. In their words: "the child's self-confidence and independence depends upon his having experienced warm and wise maternal care" (ibid., p. 282).

In 1942 Shirley was the first to actually use the term 'strange situation' as a factor to be measured. Just like in her 1941 study, children were observed at the Center for Research on Child Health and Development. This time Shirley classified the responses of the children to being separated from their mother for the day. The classifications ran from 'least mature' (crying and resisting on arrival) to 'most mature' (arriving at the center eagerly) in eight steps. Again, Shirley made a point of analyzing the children's behavior on the basis of the home situation and the mother's attitude towards child care. Children had been coming to the Center from birth, and during each visit many potentially relevant matters were recorded, starting with the behavior of the parent and the child when the child was picked up from home or dropped off by the parent.

Children's comments were noted down during their day at the center, and the parent was interviewed at the end of the day, before picking up the child. This information was compared to the child's adjustment on the day of separation. Shirley firmly believed that a child's upbringing could tell us something about their behavior in a strange situation: "The brief histories given above point in the direction of that well-established clinical hypothesis that family relationships are a factor of paramount importance to the child's adjustment in any situation" (Shirley, 1942, p. 210). The question posed in the introduction of her paper, "Is the adjustment of a child to an unusual event related to factors within his home experiences – to his relations of confidence and affection with his parents?" (ibid., p. 202), was answered in the affirmative in the summary:

> A child's level of adjustment depends [...] much more upon the wholesomeness of his upbringing in the home, and the security and affection given him by his parents. A secure and wholesomely loved child goes forth to meet a new experience in a spirit of adventure, and comes out triumphant in his encounters with new places, new materials, and new friends, old and young (ibid., p. 217).

Shirley did not mention William Blatz (see below), but this observation matched the description of what Blatz called "an independently secure child" in several of his childcare manuals (Blatz, Millichamp & Fletcher, 1936; Blatz, 1944). Shirley thus believed that children who are secure and wholesomely loved behave with confidence in a strange situation.

Ainsworth's line of thinking on the behavior of children in a strange situation bears great resemblance to that of Shirley, but for reasons unknown Ainsworth never mentioned Shirley in relation to her own strange situation work. We know that Ainsworth was aware of at least some of Shirley's earlier work because in an unpublished paper on methodological problems in parent-child interaction research she mentioned a 1933 study by Shirley (Ainsworth, 1964), and it is likely that she saw the references to Shirley's work in Arsenian's important 1943 study to which she referred on numerous occasions. However, when Ainsworth talked about patterns of attachment behavior for the first time at a meeting of the Tavistock Mother-Infant Interaction Study Group in London in 1961, the earliest researcher she mentioned in this respect was Arsenian (Ainsworth, 1963).

Jean Arsenian (1943) was troubled by the fact that even though the concept of security was now mentioned frequently by various researchers (e.g., by William Blatz, Ruth Horowitz, and Lois Barclay Murphy), there did not seem to be an instrument with which to measure it: "Plainly the problem of the origin of individual differences in security can be investigated constructively only after child psychologists have agreed on the behavioral evidences of security and insecurity in young children" (Arsenian, 1943, p. 225). She was the first to explicitly state that a strange situation may be used as a diagnostic instrument: "In any situation the specific evidence of security is assumed to

be the appearance of positively adaptive patterns of behavior; conversely, negatively adaptive or emotional forms of behavior will indicate insecurity" (ibid, 1943, p. 225). She conducted an experimental laboratory study and was the first to systematically vary the absence and presence of the mother in a situation unknown to the child, which enabled her to separate the effects of the strange situation per se from the effects of separation from the mother. Four experimental groups were formed out of a total of twenty-four children aged between eleven and thirty months. They were somewhat unusual in that they grew up in a reformatory with their mothers (cf. Spitz's sample of prostitutes in Van Rosmalen, Van der Horst, & Van der Veer, 2012), who either could not give their child exclusive care as they worked as 'helpers' in the nursery and had many children to take care of, or worked in distant parts of the institution and were only allowed to see their child during visiting hours. Arsenian started off with two groups: the Alone-group which consisted of sixteen children entering the strange situation alone, and the Mother-group which consisted of eight children who were accompanied by their mothers (or, in cases where the mothers of the children worked elsewhere in the institution and were not available, by a 'substitute' mother or a nursery helper) when placed in the strange room. Six children from the Alone-group were on later trials accompanied by their mother and so became the Alone-Mother group, and five children from the Mother-group were on later trials left alone in the experimental room and became the Mother-Alone group. The children were observed during ten or eleven trials consisting of five minutes in the strange room on alternate days. If they were accompanied by their mother or substitute, "the adult sat near the entrance to the strange room and was instructed to remain as impassive as possible" (Arsenian, 1943, p. 229).

All behavior of the children was classified into five categories, three of them indicating goal-directed and adaptive behavior (play, locomotion, talking), and two of them indicating signs of distress (crying, and "autistic gestures" (cf. Krout, 1935) like thumb-sucking, waving arms, stamping feet, etc.). The average duration of each type of behavior was determined. Children in the Alone group spent most of the first four trials crying and engaging in autistic behavior, but the children stopped crying in later trials. In the Mother group, adaptive behaviors dominated and at all times they showed more adaptive behavior than children from the Alone group. The children showed different patterns of approach and withdrawal activity. Arsenian eventually distinguished ten different patterns of behavior (from less to more adaptive: nonmotile withdrawal and crying, agitated movement, retreat with crying, attack, regressive encapsulation, nonmotile withdrawal without crying, encapsulation in play, approach with conflict, and free approach) and continued to rate the ten patterns on a security scale ranging from -5 to +5. Using these scale values, Arsenian computed security scores for the children: "Security of any child on a given trial was found by multiplying the scale-value of each pattern which he displayed by the percentage of time during which he exhibited

it" (Arsenian, 1943, p. 237). Average scores for the Mother group and the Alone group were computed and it was found that children in the Mother group behaved much more securely, and that security increased over time in both groups – security indicating specific behavior in context, not a specific mother-infant relationship. Of course, there were enormous individual differences. Lewin's influence was clearly visible when Arsenian stated that "insecurity is formulated as a function of the unfamiliarity, or unstructuredness, of the environment in relation to the child's feeling of power in it" (ibid., p. 248).

It is clear that Arsenian introduced important techniques and notions into the study of a strange situation's effects on children. She specifically chose a strange room and the removal or introduction of a mother or caregiver to study their effect on children's feeling of security. She rated the behavior of the children in the strange situation on a ten-point scale, and translated the behavior into a degree of security. However, unlike Ainsworth would do two decades later, Arsenian did not classify child behavior in terms of attachment patterns, nor did she explicitly study exploration or pay attention to the reunion with the mother (as Shirley had done).

Even though the studies of Shirley and Arsenian were mentioned on numerous occasions during the forties and fifties in reviews and articles discussing a diversity of topics (motivation, curiosity, group dynamics and methods of research, to name but a few) and authors expressed the need for a test that could aid in diagnosis of security of personality, this period did not see many researchers conducting strange situations of their own. An exception was Glen Heathers (1954), who partly replicated and tried to improve on Shirley's 1942 study. As part of the Fels Longitudinal Study, a child development study started in 1929 in Ohio and designed to study physical growth, maturation and psychological development, Heathers wanted to create a measure of emotional upset in children during a "novel social situation" (Heathers, 1954, p. 147) in order to relate this measure of upset to measures of social adequacy in school play, and to see if there was a relationship between measure of upset during the novel situation and certain aspects of home atmosphere and maternal behavior. The subjects were 31 two-year-olds. Heather's strange situation consisted of the child being parted from the mother at the door of their home, and taken by a stranger (the Trip Observer) to a strange car that would take him to nursery school at the Fels Research Institute for the first time. The procedure was repeated for the next four days, to measure adjustment. The Trip Observer filled in an eighteen-item behavior checklist (compared to the eight-step behavior rating scale Shirley had used) to make the record of upset responses "more specific and more objective" (ibid., p. 148). Next, the child was observed during play at the nursery school and behavior scored on 14 categories, paying attention to types of play activities and "various forms of dependent and independent responses" (ibid., p. 151). Prior to the first trip to nursery school, a home visitor conducted a two-hour visit

to the child's home to observe mother-child interaction and to interview the mother about her child's experiences and behavior. The Fels Parent Behavior Rating Scales were used to measure harmony in the home, sociability of the family, maternal warmth and maternal indulgence. Strict habit training was less en vogue now; the atrocities of World War II had suggested that unconditional obedience may not be the best parental goal and paved the way for the more permissive attitude exemplified by Benjamin Spock's *Baby and Child Care* (Beekman, 1977, p. 195). The results of the Fels study showed a positive correlation for trip upset and social insecurity or inadequacy in school play. No relation was found between trip upset and maternal indulgence, but Heather found home influences and maternal warmth to be associated with low trip upset. However, correlations were generally low and Heather concluded that "much more extensive observation of home influences would be required to provide adequate data for testing the relations between the child's experiences at home and his behavior in situations outside the home" (ibid., p. 157).

Seventeen years after publication, Arsenian's study was for the first time discussed at length in an overview of techniques used to study the behavior of children in the lab by Bijou and Bear (1960). They gave a detailed one-page description of her setup and concluded that

> the technique of this study seems to manipulate an important class of variables for this (and older) age ranges. The response measures used by Arsenian are broad and general (appropriate for an initial investigation); a refinement of these, and a wide use of many other responses and tasks, should prove of great significance in experimental investigations of these children (Bijou & Bear, p. 171).

The next researcher to pick up on Arsenian's study was Ainsworth.

HISTORY OF THE SSP

Mary Ainsworth wrote her dissertation in 1939 (Salter, 1939) under the guidance of William Blatz. It is well known that Ainsworth's interest in what we now call attachment stems from Blatz's teachings. Blatz, often referred to as the 'Doctor Spock of Canada' (Wright, 1996), was the first director of the Institute of Child Study at the University of Toronto, and had started his research career by studying children in the 1920s and 1930s in a nursery school especially set up for the purpose. A controversial figure in his time, he denounced authoritarianism and punishment, and promoted freedom for children so that they would learn from experience. His involvement as Educational Consultant for the Dionne quintuplets from 1935 to 1938 was afterwards viewed as unfortunate. The quints, born in 1934, were separated from their family by the state to be raised and studied by experts. Paying visitors could watch the children from behind a one-way window, which generated millions of dollars for the Canadian

state. The quints, however, were just one of Blatz's many projects and in the end he became best known for his security theory on which he lectured for years. A written version of the complete theory had to wait until his last book, *Human Security* (Blatz, 1966), which was published posthumously and was based on tape recorded notes.

According to Blatz, a child starts off having to depend on his parents. If the child feels certain the parent is going to be there for him, no matter what, the dependence is 'secure' and the child feels comfortable to go and explore. The exploration will result in development towards a state of 'independent security', although Blatz admitted in his later writings that independent security can probably never be reached completely and that a form of 'mature secure dependency' on friends and/or a partner is possibly the highest achievable goal. In the meantime, some people will remain 'immaturely dependent' or rely on defense mechanisms (such as denial, dissociation, rationalization or regression) in order to deal with feelings of insecurity. Ainsworth's dissertation was fully based on Blatz's security theory. She designed an instrument to measure security in (young) adults by using extensive questionnaires and comparing them to case histories derived from autobiographies. After her dissertation she kept expanding and improving on this instrument until 1958 when she published a much more developed version of her questionnaires (Ainsworth & Ainsworth, 1958; Van Rosmalen, Van IJzendoorn, & Van der Veer, 2014).

Ainsworth was the first, but by no means the only one attempting to measure Blatz's concept of security. In the years that followed many other members of Blatz's team in Toronto designed measures for security. Correspondence shows that Ainsworth was aware of these developments while working at Johns Hopkins, but she later stated that members of the Blatz team "went on to construct their own [tests] either for children or for infants, along lines that did not really fit with my interpretation of Blatz's security theory" (Ainsworth, 1988, p.6). Betty Flint designed the Flint Infant Security Scales for children from 3-24 months (Flint, 1959; 1974) and Ainsworth briefly discussed Flint's study in her paper on the effects of maternal deprivation (Ainsworth, 1962). She also used the Flint Infant Security Scales at the start of the Baltimore study (see below), but discontinued using them (together with some other measures) after the first few months - the paper work was too time-consuming, and the Flint scales turned out not to be discriminating among the babies of the sample. (Isaacson, 2006).

Having obtained her doctoral degree, Ainsworth spent several years lecturing at the Psychology Department of the University of Toronto before joining the Canadian Women's Army Corps in 1942, where she attained the rank of major. During her four years there, she held different positions in personnel selection, which involved clinical work like administering tests, conducting interviews, taking histories, and counseling. She returned to the University of Toronto in 1946 to work as assistant professor. To prepare herself for the teaching of a class on personality assessment she studied the

Rorschach technique and the Thematic Apperception Test. A few years later she co-authored a book on the Rorschach test with Bruno Klopfer (Klopfer, Ainsworth, Klopfer, & Holt, 1954) and continued to use the test to validate her security questionnaires (Van Rosmalen, Van IJzendoorn, & Van der Veer, 2014). Thus, the key components of Ainsworth's thinking (the parent as a source of security and as a base from which to explore the environment) and her skills and experience in the area of personality assessment, were already present when she arrived in London.

Ainsworth had followed her husband to London in 1950 and started working with John Bowlby at the Tavistock Clinic, researching the effects on young children of being separated from their mother. Ainsworth assisted James Robertson in analyzing the detailed field notes he made while observing young children during separations, for instance in hospitals or in institutions (Bretherton, 1992; Van der Horst, 2011). By doing so she gained a great deal of experience in the analysis of observational data which she was able to use in the field research she conducted several years later, when she followed her husband again, this time to Uganda. There, in 1954-55, Ainsworth studied normative development, mother-infant interaction, and the development of attachment. She did this by observing 26 mothers with their children at their homes for a few hours every two weeks, and conducting interviews with the mothers (Ainsworth, 1967). When studying these mother-child dyads, she saw increasing evidence for Bowlby's claim that attachment is based on interaction rather than on the mother providing food and other basic needs (which was the idea supported by psychoanalysts). Ainsworth left eleven years between finalizing her data collection in Uganda and publishing the book about the study. She commented that

> the full significance of what I observed and recorded in my field reports emerged only gradually, not merely in the process of analyzing my observations, but also in the course of reading, discussions with others interested in mother-infant interaction, and further research into the early development of attachment (Ainsworth, 1967, p. ix).

One of the places where she discussed the findings of her Uganda study was at the Tavistock Study Group on Mother-Infant Interaction in London in 1961, organized by Bowlby. The reception of her work quite exceeded her expectations as she had not "expect[ed] experts to find it so original and stimulating" (Ainsworth in a letter to Leonard Doob, 12 October 1961). She proposed specific criteria to determine if the infant had "formed an attachment to his mother as a special person" that went beyond those of Bowlby (Ainsworth, 1963). Ainsworth found that only looking at crying, following and clinging as reactions to (threatening) separation, as Bowlby (1958b) had proposed, was not enough to establish the strength of attachment. Contrary to popular belief according to which intensity of attachment could only be measured by the intensity of protest by the child in separation situations, Ainsworth stated:

> Yet to judge the strength of the infant's attachment to his mother solely in terms of the intensity of behavior reflecting separation anxiety would seem to be a mistake; some of the infants in this study who seemed most solidly attached to their mothers displayed little protest behavior or separation anxiety, but rather showed the strength of their attachment to the mother through their readiness to use her as a secure base from which they could both explore the world and expand their horizons (Ainsworth, 1963, p. 103).

After exhaustively examining her field notes Ainsworth came up with the following types of attachment behavior: differential crying, smiling, vocalization, visual-motor orientation towards mother, crying when mother leaves, following, 'scrambling' over mother, burying face in mother's lap, clinging, greeting by lifting arms, clapping hands, or approaching through locomotion, and exploration from mother as a secure base.

When describing the role of the mother as a secure base, or 'haven of safety', from which to explore the world, Ainsworth was clearly inspired by Blatz and Arsenian, as we have seen before, but also by Harlow (1958), who in turn had also been inspired by Arsenian. All three had reported that the baby used the mother as a secure base from which it would go out and explore, ready to face external threats without panic. Harlow, who was also present at the Tavistock Study Group meetings, conducted research with rhesus monkeys and described how the mother or mother surrogate acted as a secure base for the baby monkey in a strange situation. During the so-called 'open field test', the baby monkey was put in a strange environment (a room measuring six by six feet containing some stimuli), and Harlow described how the monkey would rush to the mother surrogate as soon as possible and cling to her. After a few sessions, however, the baby would let go of the mother and start to venture out more and more, using her as a "base of operations" (Harlow, 1958, p. 679). The monkey would "explore and manipulate a stimulus and then return to the mother before adventuring again into the strange new world" (ibid., p. 679). However, if the (surrogate) mother was not present in the room, the monkey would remain in one spot, in a crouched position, and show no exploratory behavior whatsoever (Van der Horst, LeRoy, & Van der Veer, 2008).

When the Uganda book finally appeared in 1967, Ainsworth had gone further than just describing the development of attachment in general and had divided the children into three attachment groups, or classifications: secure-attached, insecure-attached, and non-attached. Classifications were based purely on extensive observations in the home. Ainsworth was now confident that a close attachment could develop simultaneously with increasing competence and independence. She again pointed out, as she had done in 1961 at the Tavistock Study Group meeting, and in her article published in 1964 on patterns of attachment behavior, that it was the insecure child who would cling to his mother, refuse to leave her, and for whom maintaining

interaction from a (small) distance, even part of the time, wasn't enough (Ainsworth, 1964; 1967).

In the meantime, while still analyzing the data for the Uganda book, Ainsworth had started the Baltimore Study in 1963. She and her colleagues observed mother-infant interaction in 26 families by following infants from three to 54 weeks during three-weekly home visits lasting four hours each. The study was initially intended as a replication of the Uganda study and its aim was to investigate the development of patterns of attachment and to systematically observe maternal behavior (from which the construct of maternal sensitivity would later be developed). At the end of the first year, a large amount of data had been gathered regarding the behavior of the children in the home situation. As the study developed, it became clear to Ainsworth that apart from observing the infants in the home environment, it was necessary to include an observation in an experimental setting. She wanted to assess the child's use of the mother as a secure base outside the home environment, and she felt the need to base her research on measurable information in order to make her observations acceptable within a very behaviorist environment (Silvia Bell, personal communication, March 5, 2013). Thus, Ainsworth together with her assistant Barbara Wittig, designed the Strange Situation Procedure.

However, at that time they were by no means the only ones studying the behavior of children in a strange situation. In the middle and late sixties we see a sudden wave of experiments with children in strange situations, many of them inspired by Shirley, Arsenian and/or Harlow.

STRANGE SITUATIONS IN THE 1960S: PARALLEL DEVELOPMENTS

World War II had stirred the interest in the consequences of mother-child separation and psychoanalysis had now reached the summit of its popularity. Bowlby's WHO report *Maternal care and mental health* (1952) was the first attempt to chart out the adverse effects of maternal deprivation. Now, more than ever, perhaps, it was believed that the children's mental and social problems were caused by the social environment and, specifically, by the nuclear family. Researchers went to great pains to discover the social origin of children's problematic behaviors.

As part of a psychoanalytically oriented, longitudinal study designed by John Benjamin, Katherine Tennes and Esther Lampl (1966) reported on the observation of 27 infants aged between six and 36 months in a strange situation, with the aim of investigating "the contribution of the instinctual drives, both libidinal and aggressive, to the intensity of infantile separation anxiety as determined by fear of object loss" (p. 426). The children, in the company of their mothers and an examiner, were observed in a laboratory setting whilst playing, doing developmental tests, and interacting socially

with the examiner. After about 45 minutes the mother was requested to leave the room and stay away for 10 to 15 minutes. The distress of the child was rated on a five-point scale, and the experimenters were interested in the infant's way of dealing with his anxiety. In the first instance it was left to the child to reduce his anxiety by himself. Failing that the examiner would try to offer physical comfort, and if that didn't work an attempt was made to distract the child by offering him a toy. The defense reactions that were observed were described at length and included: a 'regressive attempt at kinesthetic restitution of the missing object' (stop moving and not looking at the stranger); 'active mastery of the environment' (attempts to follow the mother); 'inhibition of motor activity' (decrease in activity and motility); 'use of inanimate objects' (offering a toy to the stranger, holding on to a toy, or banging or throwing a toy). Even though their explanations were all strongly psychoanalytically orientated, Tennes and Lampl reached the same conclusion Ainsworth had presented in 1965 (Ainsworth & Wittig, 1969), i.e., intensity of separation anxiety cannot be used as the sole criterion of the child's attachment to the mother:

> The level of libidinal investment of both partners has no predictive value for the intensity of infantile separation anxiety. Infants who lack a libidinal investment in the mother do not have separation anxiety, but some children with a very high libidinal investment in the mother also fail to develop separation anxiety (Tennis & Lampl, 1966, p. 435).

Berg, Stark, and Jameson (1966) were concerned that the behavior of children, as they were being observed with their mothers in a child psychiatric clinic, was influenced by the presence of the interviewing doctor. They wanted to test objectively the effect of the presence or absence of a stranger on children's attachment and exploratory behavior and observed 17 pre-school children. The setting (see Figure 1) bore a great resemblance to the setting of the SSP: the child was placed in a playroom with his mother for two subsequent periods of 20 minutes, during one of which a stranger was present. The room contained some toys, and the mother was asked to stay seated and to try not to influence the behavior of the child. A four-foot radius circle was drawn on the floor around the mother's chair, and the amount of time the child spent inside the circle during each period was measured. Observers also noted certain types of behavior of the child, like physical contact with mother, movements in the direction of the toys, approaches to mother, speech, finger-sucking, eye-rubbing, rhythmical movements of the limbs, and communication with mother or stranger. The results allowed for the 17 children to be divided into three groups according to their reactions to the stranger: group A, consisting of seven children, showed more proximity and contact seeking towards their mothers in the presence of the stranger; group B, consisting of four children, didn't necessarily seek proximity but showed severe shyness by hardly speaking in the presence of the stranger, and group C, consisting of six children, did not seem to be bothered much by the stranger's presence. In this study, maternal personality was taken into account by asking the mothers to complete the Eysenck Personality

Inventory, the results of which were compared to the behavior of the child. The study showed that a higher mean maternal neuroticism score was related to more proximity

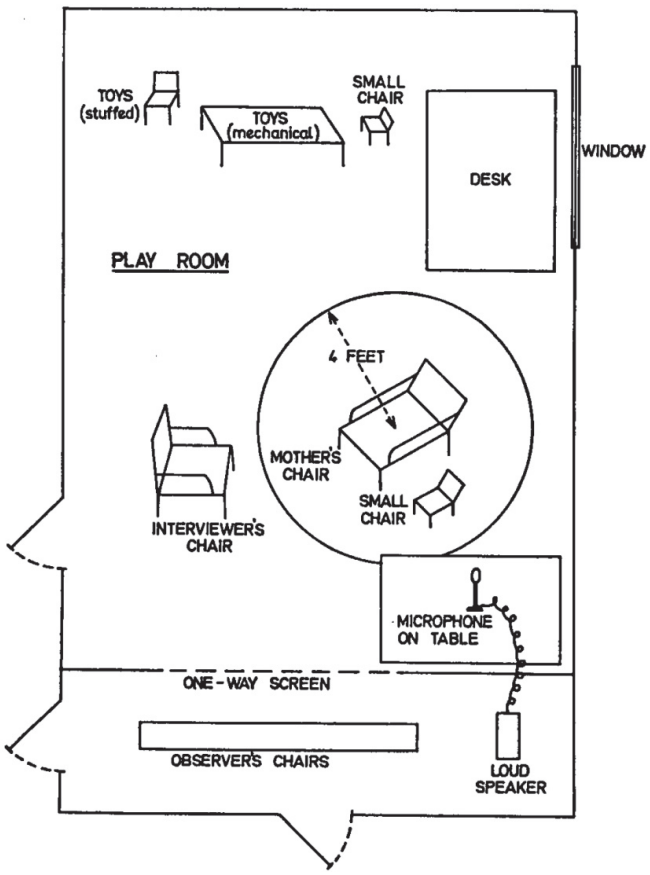

Figure 1: Setting of Berg, Stark and Jameson (1966)

seeking behavior of the child in the presence of the stranger. However, the authors hesitated to draw any strong conclusions: some measures of behavior "were insufficiently precise to distinguish those children who were more obviously affected by the stranger's presence" and some children "were apparently unaffected by the stranger and even showed more exploration and less attachment when she was there" (Berg et al, 1966, p. 249).

A couple of totally different and, according to today's standards rather horrifying studies were published by Miriam Rosenthal in 1967, who wanted to test "the suggestion made by Harlow that some form of dependency behavior toward a mother might reduce the threatening aspects of unfamiliar, novel situations, thus allowing exploratory behavior to take place" (Rosenthal, 1967b, p. 357). She manipulated anxiety levels in 64 nursery-school girls aged three to five years after placing them in a strange environment, and measured their 'dependency' by looking at attention seeking and proximity seeking behavior (seeking positive or negative attention, seeking praise and approval, seeking help, seeking proximity or being in physical contact with the adult). In her first study, the child's dependency behavior towards the mother was compared with the dependency behavior towards a stranger (Rosenthal, 1967a). In her second study, she looked for effects of the strange situation and level of anxiety on dependency behavior (Rosenthal, 1967b). The strange environment was a room in an office building filled with toys and typical play-school material (see Figure 2). The child was taken into the room by an experimenter, while the mother or stranger were already present in the room, seated at a desk behind a curtain. The adult was instructed not to initiate any interaction with the child, but if necessary to respond without rejecting it. Sessions lasted for 30 minutes. In the low-anxiety condition the room was decorated with pictures of smiling faces, and a tape recording of children's songs was heard from the room next door. In the high-anxiety condition, however, the room looked different:

> The child, on entering the room, faced a slow-burning alcohol lamp standing on a stainless steel tray. Next to it was a pair of scissors, a white paper tissue, and a pencil. The pictures of the smiling faces were replaced with a group of sad faces (Rosenthal, 1967a, p. 123).

The children's songs were replaced by sounds of banging on a metal object, a child crying, and a high-pitched shriek, coming from behind a red door, next to which the lamp was positioned. Then, after about twelve minutes

> and following a loud continuous shriek, the red door opened very slowly (the experimenter waited until the child was looking in that direction) and a hand in an arm-length black glove reached slowly in, put out the lamp and withdrew, closing the door once more. Within two or three minutes a crying sound was heard (ibid., p. 123).

Unsurprisingly, proximity seeking increased in frequency in the high anxiety situation (which would probably scare the wits out of the average adult). Frequency of total dependency behavior towards the mother was significantly higher than towards the stranger.

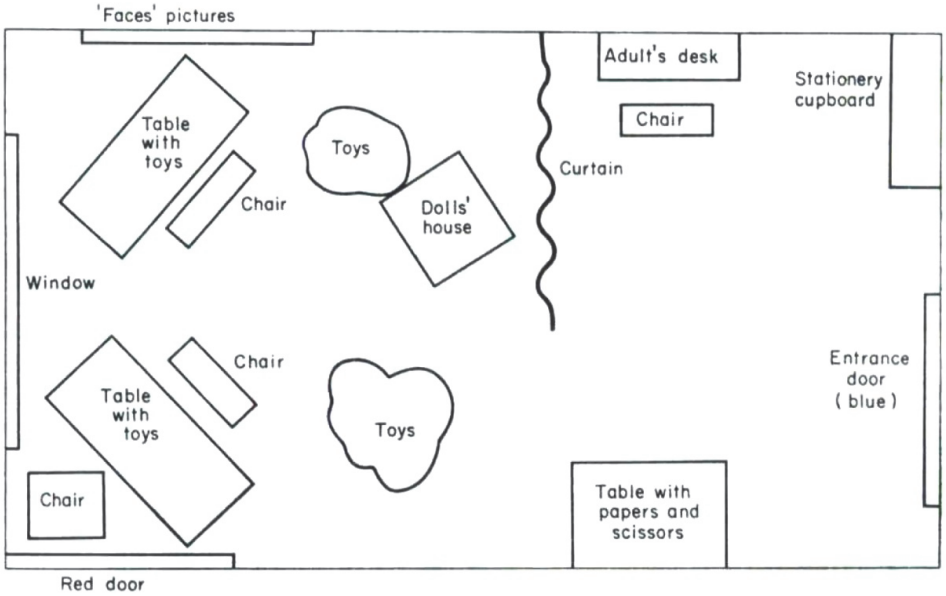

Figure 2: Setting of Rosenthal, 1967a

Roberta Collard (1968) conducted a much milder strange situation study, but from a different perspective: measuring the effect of birth order on reaction to a stranger in a strange situation. Presuming that later-born children would have siblings around them a lot of the time and that their mothers would be less protective and anxious than they had been with their first child, later borns were expected to show less fear. Collard observed 36 infants aged 38 to 56 weeks who were sat on their mother's lap at a testing table, where a stranger took position opposite the baby and offered it a toy. Response latency before picking up the toy was measured, as were exploratory and play responses, and positive or negative social responses. Collard found that first-born infants indeed took longer to pick up the toy than later-born infants. The social responses towards the stranger also differed: later borns showed more positive social responses, like laughing and smiling, than did first borns.

F.N. Cox and Dugal Campbell (1968), uneasy about the lack of evidence on which to base the decision to let a mother be present or not during experiments with children, decided to partly replicate Arsenian's study. They conducted two experiments: one consisting of 20 mothers with children aged between 13 and 15 months, and one consisting of 20 mothers with children aged between 23 and 37 months. Mother and child were taken into an observation room with a chair for mother in one corner, and a pile of four toys in the corner diagonally opposite. Half of the mothers (the

experimental group) would stay in the room for four minutes, leave the room for four minutes, and return for the last four minutes. The other half of the mothers (the control group) would stay in the room for the full 12 minutes. Observers noted the incidence of eight behaviors of the child: touching mother, holding mother, speech, movement, play, touching objects, placing object in mouth, and crying. According to the authors, these results demonstrated that "when young children play in a strange situation their behavior is affected by the presence or absence of their mothers. Absence of the mother produces a decrease in talking, movement, and playing with toys" (p. 129).

Conrad Schwarz (1968), inspired by Arsenian (1943) but also by the (at the time still unpublished) studies of Ainsworth and Wittig (1969) and Rheingold (1969), carried out his own version of the strange situation. In the introduction he declared: "there appears to be no experimental evidence which bears directly upon the existence of a unique role for attached individuals as inhibitors of distress in children over three years." (Schwarz, 1968, p. 314). The subjects were 16 children aged four, who were taken to a room with their mother by a stranger. The stranger started playing games with mother and child. After about five minutes the experimenter entered and asked either the stranger to step out of the room, or the mother. After the child was left with the mother or the stranger, the fear stimulus was activated: a remotely controlled 10 inch tall mechanical toy gorilla, hidden in a box, was made to beat its chest, walk out of the box, and beat its chest again (cf. Harlow & Zimmerman, 1959). Observations included the child's facial expressions, position in the room (the room was marked off in 18 inch squares), and visual orientation. Contrary to what was expected, results showed more observed fear in the presence of the mother. In company of the stranger the children looked away from the gorilla sooner and appeared to focus on the toys. Schwarz (1968) suggested that the mother's presence "may have facilitated the *communication* and *expression* of fear. Being left in a strange room with a strange person may have induced a general inhibition of motility and emotional communication" (Schwarz, 1968, p. 321, original italics).

In 1969, the same year Ainsworth published the data on the SSP for the first time, Harriet Rheingold published two studies on the behavior of infants in a strange environment, and the effect of the presence or absence of the mother. The data on these studies, just like Ainsworth's data on the SSP (Ainsworth & Wittig, 1969), had already been presented in 1965 during the fourth Tavistock Study Meeting. Ainsworth and Rheingold knew each other quite well, and even though they designed and conducted their studies independently and were guided by different theories, they were aware of each other's work, and were inspired partly by the same studies (e.g., Arsenian, 1943; Bayley, 1932). Rheingold's study covered several experiments in which the effect of a strange environment on the behavior of ten-month old children was observed:

"Although the effect of a strange person upon the behavior of human infants has often been studied . . . the effect of a strange environment has less often been investigated" (Rheingold, 1969, p.137). In the first experiment, the strange environment was a totally empty room, in the second one this empty room contained some toys, and in the third one the room contained a stranger. Each experiment consisted of four or five trials lasting two to three minutes each, and for half of the subjects the mothers were present in the first few trials, while for the other half of the subjects the mothers were present in the last few trials (much like Arsenian's Mother-Alone and Alone-Mother groups). The floor of the room was divided into squares (as, incidentally, was the floor of the room Ainsworth would use for the SSP during the first few years) and for the trials with the mother or the stranger they were instructed to sit in a specific square in the room and not to talk or play with the child. It was allowed, however, to look at the child, to smile or to comfort him. Observers recorded vocal responses and locomotor activity. Rheingold concluded that a strange environment inhibited exploratory behavior and evoked emotional distress. Presence of the mother, however, supported exploratory behavior, prevented crying, and evoked non-protest vocalizations. Putting toys in the room did not make much difference, whereas putting a strange person in the room caused distress and inhibited physical activity. Children whose mothers had been with them in the strange room during the first few trials were slightly more at ease in the later trials without their mother than were the children who had started off on their own. Children who were in the strange room alone during the first few trials remained more distressed even when their mothers were present during subsequent trials.

In her next study, Rheingold (Rheingold & Eckerman, 1969) again looked at exploratory behavior of ten-month-old infants in a strange environment, this time paying particular attention to "the process by which the infant detaches himself from his mother and her near environment" (Rheingold & Eckerman, 1969, p. 272). In this study, the mother was always present and seated in a small room, together with the child. The small room allowed access to a larger room: the strange environment (see Figure 3). Sometimes this larger room was empty, sometimes it contained toys. The main difference with Rheingold's previous study, in which the children were placed in the large room by the experimenter, was that this time the infant started from his mother's side and could decide himself whether to enter the strange environment or not. All 24 children in the study left their mothers and moved into the strange environment, regardless of whether there were toys in the room or not. Comparing her two studies, Rheingold remarked that in the first study the results were "attributed to the strangeness of the room. The present results suggest that it was not solely the physical properties of the room but the additional conditions of being placed and left alone that provoked the distress and inhibition" (Rheingold & Eckerman, 1969, p. 281). It was noted that apart from entering the strange environment, all children also returned to the small room, and often re-entered the large room. According to

Rheingold, this to-ing and fro-ing may well be illustrating the child's exploration from the mother as a 'secure base' (Ainsworth, 1963), or 'a base of operations' (Harlow, 1958).

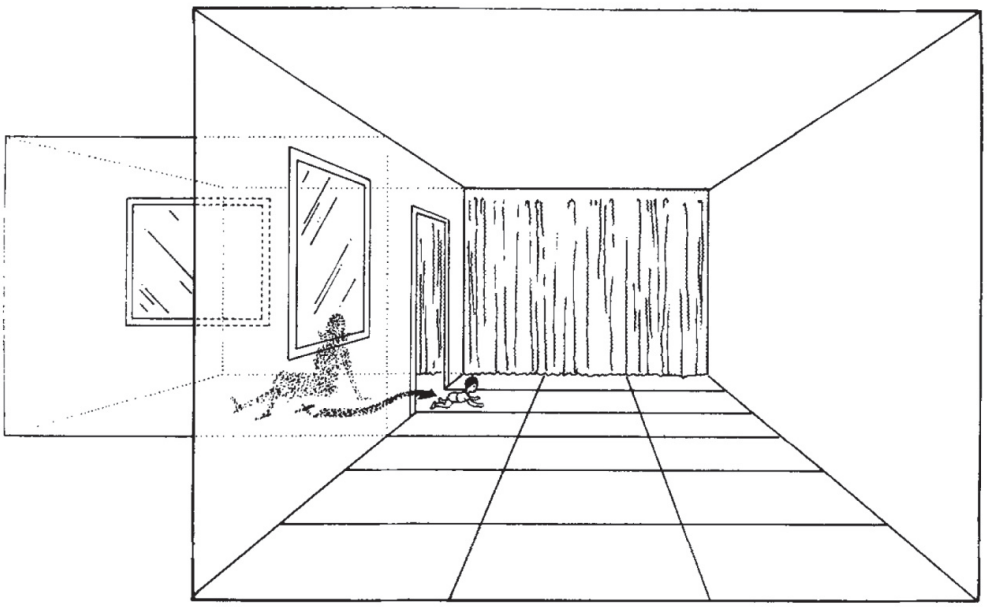

Figure 3: Setting of Rheingold and Eckerman, 1969

Before turning to the first publication on the SSP, let us summarize what these strange situation studies conducted in the mid and late sixties have in common that makes them different from Ainsworth's SSP. To start with, all these studies were normative and looked at the general behavior of children as a group, finding that children showed more proximity seeking behavior when they found themselves in scary situations, that they used the mother as a secure base from which to explore, or that they usually preferred their mother over a stranger. The next important difference is that most of these studies attributed the behavior of the child directly to the situation and not to past mother-child interactions. Reasons given for a child behaving in certain ways were that the child was put into a strange environment, a stranger was present, mother was present or not, or the child felt threatened by fear inducing stimuli. Except for two studies (Berg, Stark, & Jameson, 1966; Tennes & Lampl, 1966), and unlike Shirley and Arsenian before them, these researchers did not take the relationship between mother and child into consideration. And lastly, even though Berg and

colleagues divided the children into three groups based on their reaction to the stranger, none of these studies tried to classify the children by translating the behavior into a degree of security like Arsenian had done. In other words, many researchers from different theoretical backgrounds experimented with 'strange situations' to answer various research questions but none of these procedures developed further into an instrument measuring security or attachment. In addition to the aforementioned differences, this could partly be due to the fact that they did not fit into a larger research tradition or paradigm.

ARRIVAL OF THE SSP

Ainsworth presented her findings on the SSP for the first time in 1965, but they were not published until 1969 (Ainsworth & Wittig, 1969). The article was part of the longitudinal Baltimore study. When the child was 12 months old, each infant-mother pair was observed in a final session, the Strange Situation Procedure. Special attention was paid to three aspects: firstly, Ainsworth wanted to look at how the infant would use the mother as a secure base from which to explore the surroundings, since she considered this to be one of the most important criteria of a healthy attachment. Secondly, Ainsworth was interested in the child's response to a stranger. At home, the children had been generally comfortable in the company of strangers, but nothing was known of the infants' behavior in unfamiliar surroundings. Thirdly, Ainsworth wanted to look at the child's response to the mother's departure and return. Again, the children had been mostly comfortable with their mother's departure from the room when at home in familiar surroundings, but Ainsworth was interested in their reactions when in unfamiliar surroundings. Ainsworth stated that:

> The situation was designed to be novel enough to elicit exploratory behavior, and yet not so strange that it would evoke fear and heighten attachment behavior at the outset. The approach of the stranger was gradual, so that any fear of her could be attributed to unfamiliarity rather than to abrupt, alarming behavior. The episodes were arranged so that the less disturbing ones came first. Finally, the situation as a whole was intended to be no more disturbing than those an infant was likely to encounter in his ordinary life experience (Ainsworth, 1964, p. 53).

Ainsworth also hoped that this study would provide evidence for her notion that insecurely attached children are the ones that show a high level of anxiety in a minor separation situation, and that securely attached children would not necessarily show this by their intensity of protest when separated from their mother, as for instance Schaffer and Emerson (1964a) maintained (Ainsworth & Wittig, 1969).

Fourteen infants were put through the strange situation procedure and were rated on the following behavioral items: exploratory behavior, visual orientation, crying,

responses to mother leaving the room, responses to mother's return, responses to the stranger's entrance, responses to being picked up (by the mother or by the stranger), and responses to being put down (by the mother or by the stranger). In agreement with Ainsworth's (1963) findings with the Ganda infants, the results, when related to the infant's behavior at home, and taking into account his developmental history, did support the hypothesis that the child's ability to use his mother as a secure base from which to explore the environment is an important part of the child's attachment to his mother. Furthermore, the results of the responses to separation in the strange situation allowed Ainsworth to divide the babies into three tentative groups: Group A, consisting of four children that showed very little disturbance upon separation (the classification that would later develop into insecure-avoidant); Group B, consisting of six babies who were clearly upset by the separation, but at the same time managed to adapt (the securely attached children), and Group C, consisting of four babies that were also clearly upset, but showed distinct maladaptive behavior (the classification that would later develop into insecure-ambivalent). Whereas in *Infancy in Uganda* Ainsworth (1967) had still used the classification 'non-attached', she now stated that "the development of attachment is not easily discouraged; it can be distorted, but it takes more deprivation than is represented in this sample to discourage its growth altogether" (Ainsworth & Wittig, 1969, p. 136).

In Ainsworth and Bell's (1969) report on patterns of mother-infant interaction in the feeding situation the final classification system was published for the first time. However, since the focus of this paper was on the effect of feeding practices Ainsworth stated in a footnote that this classification system, based on a sample of 56 infants, "will be described in detail in a future publication".

Ainsworth and Bell (1970) then continued to publish a normative study on the SSP which described behaviors characteristic of the sample as a whole during each of the episodes instead of describing the individual differences reported by Ainsworth and Wittig (1969). The publication started with a summary of the ethological and evolutionary viewpoints of attachment, which in effect were at the base of Ainsworth's SSP, and was followed by an explanation of attachment and attachment behavior. The study itself consisted of observations of 56 subjects, 23 of which were part of the Baltimore study, and 33 from a study done by Bell (1970). The main findings were three-fold: first, the infants used the mother as a secure base from which to explore the strange environment. Second, as the mother left the room, exploration lessened or stopped altogether, and the infant showed proximity and contact-seeking behavior. Third, when the mother returned, the infant kept showing more proximity and contact-seeking behavior, and exploration remained at a lower level than before the mother left the room. About a third to half of the sample showed contact-resisting behavior to some degree after the first or second reunion. Ainsworth pointed out that these findings were

in accordance with findings of other experimental studies, clinical studies and field studies. Five propositions were given for a comprehensive concept of attachment:

1. Attachment is not coincident with attachment behavior;
2. Attachment behavior is heightened in situations perceived as threatening;
3. Attachment behavior is incompatible with exploratory behavior;
4. After prolonged absence from the object of attachment, attachment behavior may diminish, but is likely to reemerge;
5. Attachment relations are qualitatively different from one attached pair to another.

Based on these propositions, Ainsworth and Bell put forward their argument for the measure of quality of attachment as opposed to quantity:

> The qualitative differences, together with the sensitivity of attachment behavior to situational determinants, make it very difficult to assess the strength or intensity of an attachment. It is suggested that, in the present state of our knowledge, it is wiser to explore qualitative differences, and their correlates and antecedents, than to attempt premature quantifications of strength of attachment (Ainsworth & Bell, 1970, p. 65).

The detailed description of the final classification system of the SSP was published one year later (Ainsworth, Bell & Stayton, 1971). The paper reported on the same study as the normative paper (Ainsworth & Bell, 1970), but this time the authors looked at individual differences. Comparing the extensive home observations and developmental history of the infant-mother relationship with the infant's behavior during the SSP made it possible to clearly define the different attachment categories. To test the new classificatory system, an additional comparison was made between the attachment-exploration balance at home, where the infants were categorized into five groups according to the ability of the infant to use the mother as a secure base from which to explore the world, and the infant's SSP classification. Ainsworth found "an impressive degree of congruence between a baby's response to his mother in the strange situation and the quality of the attachment-exploration balance at home" (Ainsworth, Bell & Stayton, 1971, p. 39).

Next, Ainsworth compared maternal behavior with the attachment classifications (cf. Berg, Stark & Jameson, 1966). Maternal behavior had been rated during home observations and was divided into four dimensions: acceptance-rejection, cooperation-interference, accessibility-ignoring, and sensitivity-insensitivity. There was no doubt that mothers of group B babies were significantly more sensitive, but Ainsworth hoped to be able to identify what distinguished A and C mothers by studying the other three dimensions. During the last quarter of the first year, the four dimensions were rated separately for each home visit and results indicated that group A mothers were significantly more rejecting than group C mothers. Ainsworth herself was pleased with the results:

> In a previous publication (Ainsworth & Wittig, 1969) we reported the strange-situation findings for the first 14 subjects in our sample, and our impression that individual differences were related to differences in style of mother-infant interaction throughout the first year of life. In view of the expensive and very time-consuming nature of longitudinal research, it is an attractive notion that one might in a 20-minute procedure obtain a reasonably reliable and valid assessment of the nature of the relationship that has developed between an infant and his mother (Ainsworth, Bell, & Stayton, 1971, p. 19).

This statement by Ainsworth provides a partial explanation of the success of her measurement procedure. If one believes with Bowlby and other attachment theorists that social problems such as juvenile delinquency and pilfering find their roots in inadequate mother-child relationships and if one hopes to identify suboptimal mother-child relationships in order to intervene in the family process and remedy the problems, the availability of a simple laboratory procedure to typify that relationship is indeed a godsend. For the first time, instead of conducting lengthy and repeated clinical interviews with mothers in the Child Guidance Clinic, instead of repeatedly paying costly visits to the homes of mothers and children, one could simply run the mother-child dyads through the lab procedure and identify the couples at risk.

CONCLUSION

In 1969, Ainsworth published her first study on the Strange Situation Procedure. She was, however, by no means the first researcher to look at the behavior of children in a strange situation. The first studies on this subject emerged in the 1930s. When reviewing the relevant studies published from the 1930s to the early 1970s, however, we found nothing remotely like a linear progression. Quite the opposite: researchers were not aware of, or ignored, previous studies using a strange situation, or chose to change the previous setups to answer their own particular research questions. For instance, even though Shirley (1941; 1942), Heathers (1954) and Berg, Stark and Jameson (1966) focused on the mother-child relationship in a similar way Ainsworth did, Ainsworth never mentioned these studies in relation to the SSP. Some of the studies carried out in the 1960s had in common that they borrowed from Shirley and Arsenian, but again, researchers appeared to be unaware that similar research was being conducted elsewhere at around the same time. Most of the procedures discussed in this paper were not followed up, possibly, because they did not become imbedded in a research paradigm that generated new research questions with potential social and clinical implications.

Comparing all the strange situation studies available from the beginning of the 20th century until the first publications on Ainsworth's SSP, we argue that the latter was different for a number of reasons. Firstly, the SSP was based on a blend of Blatz's security theory and, more importantly, Bowlby's attachment theory (which she helped develop) and offered explanations for the observed behavior from an evolutionary and

an ethological standpoint. This gave Ainsworth's instrument a solid backbone. Secondly, she was one of the few to focus on parent-child relationships instead of traits or behaviors of the child. Whereas most studies conducted in the 1960s attributed the behavior of the child to the presence of the stranger or the strange surroundings, Ainsworth presumed the child might feel more or less secure as a result of his relationship with his caregiver. Thirdly, the SSP was not a normative study but gave information on developmental differences between individual children. And last but not least, the SSP allowed researchers to infer or classify the child's attachment relationship with the mother from the behavior of the child in the lab. For the first time researchers had at their disposal a simple and time-saving instrument with which to typify the attachment relationship of individual children with their caregivers. This satisfied the need to identify problematic development at an early stage. Or, in the words of attachment researcher Michael Lamb: "The Strange Situation procedure has become popular in part because of claims that Strange Situation behavior predicts important aspects of the child's behavior as much as several years later" (Lamb, 1984, p. 136).

In this contribution we have extended the historiography of attachment theory and of the SSP in particular, and shown that Ainsworth was not the first, and certainly not the only one to observe the behavior of a child in a strange situation, with or without his mother. She was, however, one of the few who translated the behavior of the individual child into a degree of security or attachment. Supported by the strong connection with Bowlby's attachment theory and providing a quick and easy way to measure attachment, the SSP became the instrument of choice for many attachment researchers.

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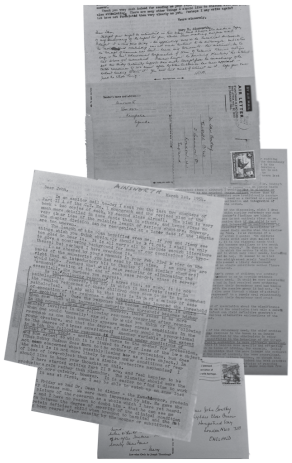

Chapter 4

Measuring Attachment: The Ainsworth Security Questionnaires Revisited

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Unpublished manuscript

ABSTRACT

For more than two decades, starting in 1936, Mary Ainsworth studied the concept of security and attempted to measure security through the use of questionnaires. She kept improving on these questionnaires, trying different versions with different groups of young adults, even when already working with John Bowlby. In the present paper, we present this little-known research and report a replication in a Dutch sample. College students (N = 247, age M = 19.1) were asked to complete both the pioneer questionnaire measuring security designed by Ainsworth and a present-day questionnaire measuring attachment style, the ECR-RS (Fraley, Heffernan, Vicary, & Brumbaugh, 2011). It proved possible to construct a reliable and valid security measure on the basis of Ainsworth's original items.

Mary Ainsworth's (1913-1999) famous Strange Situation Procedure (Ainsworth & Wittig, 1969) was by no means her first attempt to try and measure secure attachment. From the moment Ainsworth was introduced to the concept of security by William Blatz at the University of Toronto in the early 1930s, the subject fascinated her, and Ainsworth's later interest in attachment clearly has its roots in Blatz's teachings (Van der Horst, 2011; Van Rosmalen, Van der Horst & Van der Veer, 2015).

Blatz lectured on his security theory for years but published little (e.g., Blatz, 1934; 1940; 1944). It was only towards the end of his life that he provided a comprehensive account of the theory in his book *Human Security*, which was published posthumously (Blatz, 1966). Blatz defined security as "the state of mind of an individual who is willing to accept the consequences of the choice of his behaviour [...] or knows or feels that someone or something other than himself will accept the consequences of his behaviour" (Blatz, 1940, p. 182). Children start off having to depend on their parents. This state Blatz called *immature dependent security*. As children grow older and begin to feel certain the parent is going to be there for them no matter what, the dependence becomes *secure* and they will feel comfortable to go and explore the environment– i.e., to use the parent as a *secure base*. Ideally, this exploration will result in development towards a state of *independent security*, although Blatz admitted that independent security can never be reached completely and in his later writings he stated that a combination of independent security and *mature dependent security* on friends and/or a partner is the highest achievable goal. Those who do not feel sufficiently secure or lack adequate skills may avoid the inevitable frustrations which exploration of the environment brings and, thus, may not learn to become secure and relatively independent persons. Rather, they remain *immaturely dependent* or rely on defence mechanisms (which Blatz called *epduty agents*) in order to deal with their feelings of insecurity. Because these defence mechanisms may not work in every situation, such individuals may develop mental or social problems. According to Blatz, security is important in different spheres of a person's life: parent-child relations (*familial intimacies*), interpersonal relations outside the family (*extra-familial intimacies*), adjustment to work or school (*vocation*), leisure-time activities (*avocations*) and religion or other beliefs (*philosophy of life*) (cf. Blatz, 1944, 1966).

Blatz's theory had quite a few elements in common with attachment theory as developed by John Bowlby and Mary Ainsworth in the late 1950s and early 1960s. First, in Blatz's theory, young children are emotionally dependent on their parents and need to feel secure that they have their support whatever happens. Second, and on that basis, they will then feel confident to explore the environment, face and overcome challenges, and, thereby, acquire new knowledge. A solid emotional bond in infancy thus forms the basis for later emotional and cognitive achievements, just like in attachment theory. Of course, there are differences as well. For example, Blatz had no evolutionary perspective and was more focused on the outcome of the attachment process, i.e., a healthily

adapted adult, than on the study of this process itself in parent-infant interactions. Nevertheless, one can see that Ainsworth's interest in the notion of secure attachment and its importance for social and cognitive development has its origins in Blatz's theorizing and Ainsworth herself claimed that much of what she learned from Blatz was "absorbed into attachment theory and research, and gained widespread acceptance and use" (Ainsworth, 2010, p. 52).

MEASURING SECURITY

Blatz's theory of security was based on observation and clinical practice, and instruments to test the validity of his ideas did not exist. He therefore encouraged his graduate students to develop such instruments. As it happens, Ainsworth (then Salter) was the first to develop an instrument to measure Blatz's concepts (cf. Ainsworth & Ainsworth, 1958; Blatz, 1966). In 1936 she began her dissertation research on measuring security in the familial and extra-familial spheres in young adults (i.e., students) with Blatz as her supervisor. To measure insecure and secure feelings, Ainsworth developed an extensive questionnaire, here called the Ainsworth Security Questionnaire (ASQ), and compared its outcome to brief autobiographies supplied by the students. This allowed her to check whether the outcome of the questionnaires made clinical sense. A trial run with 64 randomly ordered questions was done on two groups totalling 250 students, and a revised version was submitted to a third group consisting of 136 third-year psychology students who were taking a personality course. All items were statements describing feelings or attitudes. It proved surprisingly difficult to develop a questionnaire that reliably measured Blatz's supposed categories and with each new sample Ainsworth found that items had to be removed and replaced by others.

One of the problems Ainsworth faced as her research progressed was that a global scale score from very secure to very insecure does not take into account the different patterns of behaviour originating from the different ways in which a person can be secure or insecure according to Blatz. As work went on, however, the validity of the total score did not appear to matter, because clear patterns of scores emerged. Ainsworth then selected the autobiographies of the eight subjects who's patterns most clearly emerged, and "was enormously impressed by the congruence of the score patterning and the autobiographical material" (Ainsworth, 1988, p. 9). The results of Ainsworth's first questionnaire research are summarized in her dissertation (Salter, 1939), which was published one year later (Salter, 1940). Her conclusion was that a reliable and valid instrument measuring security could be developed and that the results found with such an instrument confirmed Blatz's ideas about security and social adjustment.

As mentioned before, Ainsworth was the first, but by no means the only one to try and measure security under the guidance of Blatz. After the Second World War research continued and Ainsworth worked together with Blatz supervising quite a few

PhD theses and MA theses (Leonard Ainsworth's, amongst others) developing scales to assess security in a diversity of areas (Ainsworth & Ainsworth, 1958; Blatz, 1966). Ainsworth later complained that "others of Blatz's team in Toronto went on with security research, but I was unhappy that none made use of my tests, but rather went on to construct their own either for children or for infants – along lines that did not really fit with my interpretation of Blatz's security theory" (Ainsworth, 1988, p. 9).

COMBINING ATTACHMENT AND SECURITY RESEARCH

In 1950, Mary Salter married Leonard Ainsworth and the couple left Toronto for London, where Leonard would finish his PhD. Despite finding herself in a totally new scientific environment, Ainsworth did not abandon her questionnaire work while working as a research associate at the Tavistock Clinic with John Bowlby from 1950 to 1953. On the contrary, she continued developing and refining items to measure Blatz's concept and even administered security questionnaires to London students.

However, the results of this new questionnaire research were published with some delay. After their time in London the Ainsworths spent two years in Africa before moving to the USA in 1956 and it was not until 1958 that Ainsworth and her husband published *Measuring security in personal adjustment* (Ainsworth & Ainsworth, 1958). The book was published when Mary Ainsworth worked at Johns Hopkins University, and Blatz himself stood for the introduction. Ainsworth and Ainsworth reported on the development of four tests (familial, extra-familial, avocational and philosophical) which had known many previous versions, some originally designed by other members of the Blatz team, and were meant to measure (in)security in important areas of life in young adults. The first versions of the familial and extra-familial tests designed by Mary Ainsworth (Salter, 1939) had measured a single continuum of insecurity-security, but even then there had been some attempt to describe the means by which the person attempted to maintain security. This time five subtests were specifically developed for, respectively, independent security, mature dependent security, immature dependent security, deputy agents, and insecurity. Four different versions of the questionnaire were tested on samples of college students and high school students.

The authors described the on-going process of deleting items, replacing items and adding new items. The constant problem seems to have been that items of different subtests correlated positively when they, according to the theory, should correlate negatively and vice versa. For example, items measuring independent security should correlate negatively with items measuring mature dependent security. Another problem was that the pattern of answering varied widely between the samples. For example, the London students endorsed many more independent security items than the students from Canadian samples. The authors suggested that "it may well be that the Canadian culture offers less encouragement to an independent secure adjustment... than the English culture" (Ainsworth & Ainsworth, 1958, p. 43).

The authors were reasonably satisfied with their fourth version of the questionnaire, although they still made a substantial number of suggestions to improve it. Reliability of the subtests, for example, did not seem high enough. When used together, however, they thought the items provided a satisfactory general measure of (in)security and, thus, were useful to identify insecure or overly defensive persons. They mentioned that in a limited number of cases results of the questionnaire were compared with findings from the Rorschach and the Thematic Apperception Test but no details were provided (Ainsworth & Ainsworth, p. *ix*). Mary Ainsworth even planned doing a factor analysis on the data (letter to Mary Northway, dated June 26, 1956), which at the time would have had to be done by hand, but in the book this was just mentioned as a desire for the future (Ainsworth & Ainsworth, 1958, p. 83).

Even though the authors may have been satisfied, not much use seems to have been made of their two decades of work. Apart from a study by Leonard Ainsworth himself, using the scales to establish that insecurity was correlated significantly with rigidity in problem solving (Ainsworth, 1958), in the period from 1958 to 2014 only four studies (Potanin, 1959; Powell & Jourard, 1963; Frank, Pirsch & Wright 1990; Juang, Lerner & McKinney, 1999) and one unpublished PhD thesis (Montgomery, 1974) were found using the Ainsworth questionnaires. Ainsworth's correspondence shows that her involvement continued for at least several more years after the book was published (e.g., letter to Hilde Himmelweit, dated 12 January 1961) and she received a couple of requests for a copy of the questionnaires in the late 1950s and early 1960s. These, however, do not appear to have resulted in any publications and it seems safe to assume that this type of self-report security research did not develop any further.

REBIRTH OF SELF-REPORT QUESTIONNAIRES MEASURING SECURITY / ATTACHMENT

Because of the demise of the Blatzian questionnaire work, the 1980s are usually seen as the decade in which, for the first time, tests emerged to examine attachment in older children and adults (as opposed to examining attachment in infants). In 1985, George, Kaplan and Main created the Adult Attachment Interview, based on the attachment categories of Ainsworth's Strange Situation Procedure. Much easier and quicker to process were the self-report questionnaires that started to emerge around the same time (Crowell, Fraley & Shaver, 2008), like Hazan and Shaver's Love-Experience questionnaire (Hazan & Shaver, 1987), the Inventory of Parent and Peer Attachment (Armsden and Greenberg, 1987), the Reciprocal Attachment Questionnaire for Adults and the Avoidant Attachment Questionnaire for Adults (West, Sheldon & Reiffer, 1987), the Berkeley Leiden Adult Attachment Questionnaire (Main, Hesse & Van IJzendoorn, 1991), the Attachment History Questionnaire (Pottharst and Kessler, 1990), the Relationship Questionnaire (Bartholomew and Horowitz, 1991), and the Relationship Styles Questionnaire (Griffin and Bartholomew, 1994). Many of these

authors referred to Ainsworth's Strange Situation Procedure (SSP) but her security questionnaires were never mentioned.

As the number of questionnaires attempting to measure security or attachment steadily increased, Brennan et al (1998) decided to collect the non-redundant items from all existing self-report attachment measures and carry out a factor analysis. Anxiety and avoidance turned out to be the two major factors underlying all these measures. They then designed an anxiety and an avoidance scale, each comprising 18 items, which together formed the Experiences in Close Relationships inventory (the ECR). Today the ECR, together with the ECR-R (Fraley, Waller & Brennan, 2000) is one of the most frequently used questionnaires to measure adult attachment. In 2011, Fraley, Heffernan, Vicary, and Brumbaugh designed a short version of the ECR, the ECR-RS, consisting of nine items that can be applied to any type of relationship in order to assess attachment dimensions in multiple contexts.

THE PRESENT STUDY

Ainsworth and Ainsworth (1958, p. 84) concluded that "the most essential step towards validation is to repeat the same study with a new population in order to check the reliability of the inter-correlations upon which the present case for validity rests". In this study we followed their advice and administered the ASQ to a group of Dutch students, testing validity through factor analysis and other statistical means. In addition, we asked our respondents to complete the ECR-RS (Fraley et al., 2011), in order to be able to compare the Ainsworth scales to a present-day set of scales measuring attachment style. The substantial overlap in concepts of security in adults and attachment style in adults justifies the comparison of these measures.

Our hypotheses are the following. First, we suggest that Ainsworth developed a pool of items sufficiently rich to create a reliable security measure. Second, we expect that this security measure will be associated with the ECR-RS in predictable ways. Third, we explore the validity of the security measure against criteria such as Ainsworth's measures for social confidence and for friendship, and (changes in the) composition of family of origin.

METHODS

Procedure. In accordance with Ainsworth's procedure, we asked students to complete a set of questionnaires during a class. All were first year students enrolled in a Child Development course at the University of Leiden, the Netherlands. They completed the ASQ on familial and extra-familial relationships (cf. Ainsworth & Ainsworth, 1958) and the short versions of the ECR, the ECR-RS (Fraley et al., 2011) about relationships with mother, with father, with a best friend and with a (present or past) romantic partner. They also filled out a brief questionnaire on background

variables such as age, gender, and family composition. The ASQ and ECR-RS were translated into Dutch and translated back into English to double-check. Completion of the questionnaires took 30-45 minutes.

Sample. The total number of students was 247, with only few males (n = 15), which mirrored the actual gender distribution in this discipline. We decided to include only females (N = 232). Mean age of the students was 19.1 years (SD = 2.31), with 27% missing data for age. In 44% of the cases, respondents were the eldest child in their family, nine of 232 subjects did not have a sibling. Three respondents had lost their mother, and six respondents had lost their father through death. Parents were divorced in 21% of the cases. Two-thirds of the students still lived with their parents, which is not uncommon in the Netherlands where housing is expensive and most universities do not have a campus with dormitories. Of the students 41% were currently involved in a romantic relationship.

Questionnaires.

Ainsworth Security Scales. In order to optimise the comparison between the ASQ and the ECR-RS we decided to focus on the Ainsworth scales pertaining to the parents (the familial scale), and tried to reconstruct her scales for Independent Security, Immature Dependent Security, Insecurity, and Deputy Agents security. In Ainsworth's original study (Salter, 1939), students were asked to only check the items that they felt applied to them and leave other items blank, because Ainsworth "felt strongly that forced choices introduced distortions" (Ainsworth, 1988, p. 8). In accordance with Ainsworths' 1958 study, however, we asked the students to choose between the following answers to each item: *true*, *false*, *cannot say*. The latter alternative was recoded to fall in-between *true* and *false*, in accordance with the way in which Ainsworth dealt with this issue in one of her analyses (Ainsworth & Ainsworth, 1958, p. 64). With *cannot say* considered missing, reliabilities were not higher. Cronbach's alpha reliabilities for the ASQ subscales were too low: .23, .51, .63, and .50 for Independent Security, Immature Dependent Security, Insecurity, and Deputy Agents security, respectively. Improving the scales by deleting badly fitting items did not result in substantially higher reliabilities. We then decided to create a scale based on all Ainsworth items pertaining to the parents without taking into account her ideas about subscales. After studying the items Ainsworth had proposed to delete because they did not seem to work we left out items 24, 28, 31, 32 and 35. Additionally, we decided to leave out the deputy agent items. Ainsworth had not included deputy agent items in her first version of the familial scale (Salter, 1939; 1940) and when they were introduced in the second and subsequent versions the scale proved to be consistently problematic.

Ainsworth social confidence and friendship scales. As mentioned above, our respondents also completed Ainsworth's extra-familial scale, a set of items assessing respondents' functioning outside the family. Ainsworth's extra-familial scales measure feelings of security in interpersonal relations outside the family in general, excluding

special reference to "heterosexual relations" (Ainsworth & Ainsworth, 1958, p. viii). A factor analysis on Ainsworth's extra-familial items yielded 4 factors according to the scree test, but only the first two factors were alpha reliable. The first factor consisted of 11 items pertaining to feelings of social competence and showed a high Cronbach's alpha reliability of .88. The second factor consisted of seven items addressing satisfaction with friendship relationships, with a reliability of .73.

Experiences in Close Relationship, Relationship Structures (ECR-RS). The students completed the brief 9-item version of the Experiences in Close Relationship questionnaire in its revised form focusing on Relationship Structures (Fraley et al., 2011). The ECR-RS is a self-report instrument designed to assess attachment style in a variety of close relationships. Here we report on the ECR-RS on mother and on father. Two scores, one for attachment-related avoidance and the other for attachment-related anxiety, were computed for attachment to mother and for attachment to father. Cronbach's alpha reliability for Avoidance to mother was .86 and for Anxiety to mother .70. Their correlation was .38. For Avoidance and Anxiety to father reliabilities were .90 and .80, respectively. The ECR-RS scales for father correlated .57.

RESULTS

Ainsworth Security Questionnaire-Revised (ASQ-R). Starting with 22 items of the ASQ we conducted a factor analysis using oblimin rotation. Two factors emerged according to the scree test, with eigenvalues of 4.4 (16 items) and 2.0 (6 items), and explaining 20% and 9% of the variance, respectively. Cronbach's alpha reliability for the first factor amounted to .81, whereas reliability for the second factor was too low: .36. The items of the first factor were standardized, summed and the sum was divided by the number of items. The resulting scale showed a skewness of -1.61 (*SE* = .16) and a kurtosis of 2.81 (*SE* = .32). The scale was reversed and a log10 transformation improved skewness and kurtosis considerably: skewness was .88 (*SE* = .16) and kurtosis .43 (*SE* = .32). The resulting ASQ-R scale had a mean of 1.41 (*SD* = .12, min = 1.00, max = 1.60). Higher scores on the ASQ-R mean more attachment security. The ASQ-R is presented in the Appendix.

Convergent validity with ECR-RS. The ASQ-R correlated significantly with the two ECR-RS scales for avoidance and anxiety to mother, -.61 and -.32, respectively ($p < .001$; $n = 230$). The same was true for the ECR-RS to father: -.54 and -.39, respectively ($p < .001$; $n = 222$).

Discriminant validity. The ASQ-R was not associated with age, number of children in the family, birth order, parental loss, still living at home, or having a romantic partner (all $p > .5$).

Predictive validity. The ASQ-R was associated with parental divorce, as respondents with divorced parents scored significantly lower on the ASQ-R security scale, $t(228) =$

2.68, p = .008, with a medium effect size of d = .44. Furthermore, the ASQ-R was associated with Ainsworth's scales for social confidence and for friendship, again in the expected direction (see Table 1).

Table 1: Correlations among security scales

	M	*SD*	ASQ-R	ECR-RS Avoi-dance mother	ECR-RS Anxiety mother	ECR-RS Avoi-dance father	ECR-RS Anxiety father	Ainsworth Social Confidence
ASQ-R	1.41	.12						
ECR-RS Avoidance mother	.00	.76	-.61**					
ECR-RS Anxiety mother	.00	.79	-.32**	.38**				
ECR-RS Avoidance father	.00	.81	-.54**	.35**	.12			
ECR-RS Anxiety father	-.01	.83	-.39**	.13	.33**	.57**		
Ainsworth social confidence	.00	7.34	.24**	-.32**	-.16*	-.28**	-.18*	
Ainsworth Friendship	-.02	4.42	.17*	-.04	-.21**	-.16*	-.17*	.30**

Note: *p<.05, **p<.01

DISCUSSION

Using Ainsworth's familial scale items (Ainsworth & Ainsworth, 1958) we were able to create a reliable attachment style questionnaire with promising convergent, discriminant and predictive validity, the Ainsworth Security Scale – Revised (ASQ-R) . The ASQ-R correlated negatively with the two ECR-RS scales, anxiety and avoidance, which supports its convergent validity. It was not associated with age, loss of a parent, or birth order, thus showing discriminant validity, but it was correlated in the expected direction with parental divorce, and with the Ainsworth measures for social confidence and friendship we extracted from the Ainsworth's extra-familial scale items.

We analysed the historical instrument developed by Ainsworth herself (but which is little known in the attachment community), and used present-day statistical analyses that were unavailable at the time Ainsworth worked on these questionnaires. We found that the original scales could not be replicated because alpha reliabilities were too low. When taking all scales together, however, and conducting a factor analysis on the 22 items considered most useful, a core set of 16 items turned out to fit into one scale, the ASQ-R, measuring security of attachment.

Considering the substantial investment of Ainsworth and others from the Blatz team put into the design and redesign of these self-report questionnaires measuring security, it seems strange that the fruits of this hard labour - done without computers and statistical packages - disappeared completely. On closer scrutiny, however, and looking at the second wave of attempts that have been made to measure attachment style in adults by means of self-reports since the 1980s, it seems fair to say that designing such an instrument is not an easy task. Researchers have run into difficulties, and attempts to develop and validate the BLAAQ (Main, Hesse & Van IJzendoorn, 1991), for example, have stranded. Even after more than 10 years it appeared impossible to create a self-report measure for attachment in adulthood that survived validation against the widely accepted Berkeley AAI. Three quarters of a century after Ainsworth started work on her security questionnaires, controversy remains over the general suitability of self-report questionnaires for measuring security of attachment (cf. Steele, Cassidy & Fraley, 2002; Crowell, Fraley & Shaver, 2008; Booth-LaForce & Roisman, 2014).

The adult attachment style research, as mentioned earlier, (re)started in the 1980s and originates from two separate sources. Interview-based attachment research was started by Mary Main, a student of Ainsworth, who looked at attachment representations in parents in order to see how this influenced attachment patterns of these parents' children by developing the earlier mentioned AAI, a semi-structured interview (George, Kaplan, & Main, 1985). Hazan and Shaver (1987) began researching the connection between loneliness and insecure attachment by administering a brief self-report questionnaire. Both Main's AAI and Hazan and Shaver's Love-Experience

questionnaire were based on Ainsworth's categorical attachment patterns of infant attachment. This does not mean, however, that the two measures are interchangeable – interview-based attachment representations and questionnaire-based attachment style index different dimensions of the broad concept of attachment (Crowell, Fraley & Shaver, 2008). According to Bartholomew and Shaver (1998), when compared properly and when taking into account the differences, the measures would generally converge reasonably well. A meta-analysis by Roisman, Holland, Fortuna, Fraley, Clausell and Clarke (2007) however, showed that across 10 studies (combined N = 961) on the convergence of the AAI with self-report measures for attachment style the association between style and representation was only minimal. Notwithstanding the still unresolved case of convergence, self-report tests are much easier and cheaper to administer and to process than, for instance, the laborious Adult Attachment Interview. In addition to this, numerous experimental studies have documented that self-report measures like the ECR tap into important domains of relational functioning (Mikulincer & Shaver, 2008). Even for research on attachment representations a self-report test like the ASQ-R might in some cases be the best choice as a first screening instrument in search for highly insecure individuals.

The ASQ-R does not differentiate between types of insecurity but assesses degree of (in)security, which takes us to another point of debate: should security or attachment style be measured in dimensions on a continuous scale, or should the results be categorized into types of attachment? Ainsworth herself mentioned at one point that she believed efforts should be directed towards fine-tuning pattern discrimination (Ainsworth, 1988). Once subjects would be divided into categories, Ainsworth felt research could be taken a step further in understanding the complexity of the individual's personality and its ties with the past. Other researchers feel that adult attachment is not so much a variable on which people differ in kind, but on which people differ in degree (cf. Fraley & Waller, 1998), and nuances may be lost when scores are forced into categories with artificial boundaries. Using taxometric analyses on the largest AAI dataset to date (the NICHD SECCYD study with N = 857 participants) Booth-LaForce, Roisman and colleagues suggested that attachment representations should be considered mostly continuous instead of categorical, and that a continuous security dimension would not emerge from the AAI measure (Booth-LaForce & Roisman, 2014). In a rebuttal, Van IJzendoorn and Bakermans-Kranenburg (2014) argued that it is premature to derive conclusions about the nature of attachment representations, as attrition caused the NICHD SECCYD sample to represent typically developing late adolescents from predominantly white middle class backgrounds, possibly explaining the very small percentages of insecure-preoccupied and unresolved subjects (3% each). Furthermore, it was argued that the continuous or categorical nature of attachment cannot be derived from analyses within the domain of AAI data and that differential predictive validity of continuous versus categorical measures of attachment

should provide more conclusive evidence. However, the issue might remain undecided since the 'true nature' of a social phenomenon is not typically carved in stone, but tends to be dependent on measurement and on the pragmatic scientific goals to be reached (Van IJzendoorn & Bakermans-Kranenburg, 2014).

The present study has some limitations. First of all, our sample is a rather homogenous one: all female college students, and mostly Caucasian, so replication in more diverse samples is badly needed. Secondly, most current self-report measures for adult attachment style seem to have two underlying dimensions: avoidance and anxiety. We too found a second dimension through factor analysis but this second factor turned out not to be reliable. This may be caused by the small number of items (6), although the ECR-RS also contains few items (3) for anxiety. Another reason may be that a sample of college students might typically show rather low levels of preoccupation not unlike the NICHD SECCYD sample discussed before, which would make it difficult to find a separate anxiety dimension. Thirdly, more independent validity tests are needed instead of data from one source only. Does the ASQ-R predict observed parental sensitivity, for instance, or quality of the partner relationship or infant attachment? Can it say something about peer nominations, or about stress reactivity as assessed by physiological measures (e.g. in the Trier Social Stress Test, see Gilissen, Bakermans-Kranenburg, van IJzendoorn & Linting, 2008)? And would the ASQ-R be more strongly associated with the AAI, in contrast to the ECR? These are important questions for future studies.

Ainsworth herself seems to have turned away from self-report questionnaires as a measure for security of attachment style (as she did from projective research) and she eventually preferred observations and in-depth interviews. When she started working with Bowlby at the Tavistock Clinic, she became "wholly enchanted with the notion of prospective research in the natural environment, relying on direct observation of behavior beginning in infancy, rather than upon retrospective inferences from paper-pencil tests for adults" (Ainsworth, 2010, p.51). Nevertheless, using today's advanced statistical tools we managed to select the set of items from Ainsworth's familial test needed to create a potentially useful security measure. Considering the costly and time consuming nature of attachment research based on observations and interviews and taking into account that the majority of existing self-report questionnaires focus on romantic relationships, the ASQ-R may be a welcome addition to the available screening instruments measuring security in the familial domain.

Having excavated Ainsworth's questionnaire work of decades, we were able to conduct a unique historical-empirical study to examine whether those years of painstaking effort should be considered a dead-end road or a rich source from which to create a valuable instrument. It is possible that half a century after the security measures were abandoned, Ainsworth's self-report questionnaires might at last prove to be a

secure base from which to explore adult attachment style if not attachment representations.

ACKNOWLEDGEMENTS

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Appendix I: Ainsworth Security Questionnaire – Revised (English version)

Instructions: under every statement, tick the box which most applies to you.

1. I feel on very good terms with my parents, despite the fact that I no longer rely on them for help or advice.
□ true □ false □ cannot say

2. I feel so close to my parents that I feel that they will always be my closest friends.
□ true □ false □ cannot say

3. The nagging I get from my parents sometimes irritates me very much.
□ true □ false □ cannot say

4. I feel very much at home with my parents, more so than with anyone else that I have ever met.
□ true □ false □ cannot say

5. I am concerned that my relationship with my parents is not all that it might be.
□ true □ false □ cannot say

6. Although I don't get on very well with my parents, I don't let this bother me, and try to live my own life.
□ true □ false □ cannot say

7. It is a great comfort to me to realize that I can always count on my parents to help me out of a jam.
□ true □ false □ cannot say

8. I often get a troubled feeling from wondering if my parents might disapprove of what I am doing.
□ true □ false □ cannot say

9. My family are very kind to me, but I am sorry that I do not have a real warm relationship with them.
□ true □ false □ cannot say

10. It is a great comfort to me that my parents help me to make up my mind.
□ true □ false □ cannot say

11. I feel comfortably free to make my own arrangements with my friends without talking it over with my parents.
□ true □ false □ cannot say

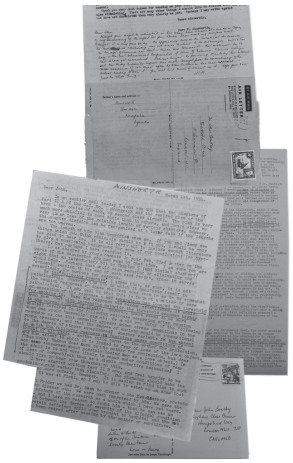
12. I feel discouraged that it is so difficult to live up to what my parents expect of me.
□ true □ false □ cannot say

13. It is a great comfort to have my parents help me such a lot.
□ true □ false □ cannot say

14. I often feel a sense of regret that I have not had as happy a family life as other people have had.
□ true □ false □ cannot say

15. It bothers me that my parents do not allow me to be more on my own.
□ true □ false □ cannot say

16. One of the reasons that I get along so well with my parents is that I never feel held in by their disapproval.
□ true □ false □ cannot say



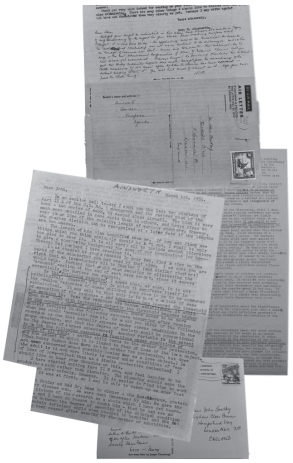
Epilogue

After conducting the Baltimore Study, Ainsworth stayed on at the Johns Hopkins University until 1975, when she moved to the University of Virginia (Ainsworth & Bowby, 1991). There she was first appointed Visiting Professor, and then Commonwealth Professor from 1975 until her retirement at age 70 in 1984. During this time she carried on teaching developmental psychology, and continued to conduct and publish her own research, while supervising the research of graduate students (Bretherton, 2003). Even after her retirement, however, she continued to be professionally active until the early 1990s, remaining involved in coding Strange Situations, but also helping to develop a coding system for children older than age two, and learning to code the Adult Attachment Interview (George, Kaplan & Main, 1984), since attachment research was moving beyond infant classifications into the preschool years, adolescence and adulthood. Apart from that, Ainsworth extended attachment theory in the sense that she studied attachments and affectional bonds other than the ones between parents and children (Ainsworth, 1989). All through the 1980s and early 1990s Ainsworth kept publishing articles. Her long-distance interaction with Bowlby continued until Bowlby's death in 1990.

Mary Ainsworth died in Charlottesville, Virginia, on 21 March 1999, at the age of 85. Her legacy, however, lives on. Ainsworth was delighted to see many people become interested in the concept of attachment and contribute to its further development (Ainsworth & Marvin, 1995). Many of her former PhD-students have made a name for themselves in research and/or in the clinical field, among them Inge Bretherton, Jude Cassidy, Patricia Crittenden, Mark Cummings, Mark Greenberg, Rogers Kobak, Michael Lamb (who, in turn, got Alan Sroufe interested in attachment theory), Alicia Lieberman, Mary Main, Robert Marvin and Everett Waters. Ainsworth did not have children of her own, but she referred to her (former) PhD students as her "academic family". One of these, Robert Marvin, together with his wife Cherri, cared for Ainsworth during the last years of her life.

In hindsight, Ainsworth's research methods were ahead of their time. In the 1960s and 1970s, when Ainsworth was conducting some of her most important research, she found it nigh impossible to obtain grants. American research psychologists didn't understand why she insisted on time-consuming home observations, necessarily resulting in small samples, or why she would be concerned with both individual and group response patterns (Main, 1999). Probably for the same reasons, her awards also came later in life. In 1998, just months before her death, the American Psychological Foundation presented Ainsworth with the Gold Medal Award for Life Achievement in the Science of Psychology. No better way to round of this thesis than with part of their statement:

"Perhaps the most exciting aspect of Ainsworth's many contributions is that their impact continues to grow. There is no other theory of development that guides as much current research as attachment theory... Although she began with the study of infants and their mothers, her work is now important to researchers within a variety of disciplines examining infants and fathers, family systems, children beyond infancy, child and adolescent social behavior, childcare practices, developmental psychopathology, adult romantic relationships, grief and bereavement, emotional and clinical practice." (American Psychological Foundation, 1998, p. 870).



Appendix

Of monkeys and men: Spitz and Harlow on the consequences of maternal deprivation

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ABSTRACT

In this contribution the reciprocal influence of Harlow and Spitz concerning the consequences of maternal deprivation of monkeys and men, respectively, is described. On the basis of recently disclosed correspondence between Harlow and Spitz, it is argued that not only was Spitz's work on hospitalism an inspiration for Harlow to start his cloth and wire surrogate work with rhesus monkeys, but at the same time, Harlow's work was a new impetus for Spitz's work on the sexual development of (deprived) infants. It is described how the two men first established personal contact in the early 1960s, after Harlow had published his first surrogate papers, how they became close friends subsequently, and inspired each other mutually.

INTRODUCTION

In the 1940s, René Spitz started publishing on the "hospitalization effect". Spitz's work had great influence on John Bowlby in the UK, and on Harry Harlow in the US. The ways in which Harlow and Bowlby and Spitz and Bowlby influenced each other have been previously described (Van der Horst & Van der Veer, 2008; Van der Horst, Leroy & Van der Veer, 2008), and the importance of Harlow and Spitz for Bowlby's work is evident when we look at the numerous references to these men in Bowlby's work - his trilogy on attachment and loss alone counts more than 30 references to Harlow and Spitz (Bowlby 1969/1982, 1973, 1980). Much less, however, is known about the reciprocal relationship between Harlow and Spitz.

The Hungaro-American psychoanalyst René Árpád Spitz (1887-1974) has become well-known for his writings about the dangers of institutional child care. He argued that prolonged separation of the child from his or her mother, in hospitals or foundling homes, for example, was very detrimental to the child's physical and mental health and he was the first to film children to illustrate this view (Mason, 1967). Partially through these films, his ideas became very influential in the 1940s and 1950s (for an overview, see Van der Horst & Van der Veer, 2008, 2009a). In his early publications, he popularized such terms as 'hospitalism' and 'anaclitic depression' and drew attention to an underestimated problem which at that time few professionals and laymen had recognized as potentially harmful for the development of young children. In his later writings, Spitz developed a more general view of children's emotional development and the origin of communication (Spitz, 1957, 1965).

The American psychologist Harry Frederick Harlow (1905-1981) already had a career behind him as an experimental psychologist—examining the formation of learning sets in monkeys (Harlow,1949), for example—when he shifted his research focus to a study of the origins of love. This shift was the unintended outcome of Harlow wanting to rebuild a colony of rhesus monkeys after he lost a group of monkeys to tuberculosis. He wanted the new group to be in excellent health, so the baby monkeys were taken away from their mothers at birth for hygiene and nutritional reasons. Noticing that the young rhesus monkeys clung to the cloths covering the bottom of the cage, Harlow started experimenting in a laboratory setting and managed to show that rhesus babies prefer a 'mother' who provides comfort and warmth to a 'mother' who provides food—to the extent that such a choice is possible—and that babies who grow up without their mother develop pathological behavior. His article *The nature of love* (Harlow, 1958), in which he described his first findings, has justifiably become one of the classics of psychology's history.

In this contribution, on the basis of the recently disclosed correspondence between Spitz and Harlow, we will take a closer look at the influence that these researchers had on each other's work and thinking. First, we will give a description of Spitz's contributions in

the field of deprivation up until Harlow's sensational 1958 paper. Then we will describe how Spitz and Harlow got acquainted and began corresponding about, among other things, the relevance of Harlow's empirical findings for Spitz's theory about the origin of child psychopathology in inadequate or absent mother-child interactions. It will be seen that Spitz and Harlow, despite the age difference, developed a productive relationship and became close intellectual friends.

SPITZ'S WORK ON DEPRIVATION OF YOUNG CHILDREN

Spitz (1945a, 1945b, 1946) was not the first to point out the dangers of institutional childcare and extreme isolation (Van der Horst & Van der Veer, 2009a), nor did he coin the term 'hospitalism' (cf. Chapin, 1915a, 1915b). However, particularly in the United States, Spitz's papers quickly gained popularity, possibly because he compared the effects of different forms of institutional childcare and conceptualized them in psychoanalytic terms. In his first articles, Spitz claimed that institutional infants younger than one year old had never been the subject of empirical investigation because of methodological difficulties. However, with the help of the Hetzer-Wolf baby tests and careful, repeated observation, Spitz thought he could gather reliable data. Comparing infants in a foundling home with infants living with their convicted mothers (young prostitutes) in a penal nursery, he found that the infants in the foundling home did much worse. The infants in the foundling home were frequently ill, obtained increasingly low Developmental Quotient (DQ) scores based on the Hetzer-Wolf baby tests, and showed hardly any signs of locomotion. According to Spitz (1945a), the deterioration process set off when the infants were weaned—until the third month they were breastfed by wet nurses—and contact with persons was reduced to a minimum. The infants in the penal nursery, on the contrary, thrived and had good or excellent DQ scores. Spitz acknowledged that the physical circumstances in the foundling home were worse than in the nursery. For example, foundlings had hardly any toys, could only see the ceiling from their cots, from which they were never moved, and shared a nurse with seven other infants, but Spitz felt that much more crucial was the fact that the foundlings' "perceptual world was emptied of human partners" (ibid., p. 68). The infants in the nursery, on the contrary, had their mothers taking full-time care of them. These mothers, unable "to sublimate their sexual drives," lavished love on their babies, who had become a "phallic substitute" to them (ibid., pp. 64-65). Thus, Spitz concluded that it was the destructive effect of the separation from their mothers that caused the foundlings to go to pieces and not the lack of sensory stimulation, and he already feared the effects "caused by the increase of female labor" (ibid., p. 72). In a follow-up article, Spitz (1945b) related that after his initial investigation, a collaborator had continued to visit the foundling home for several years and had noted its disastrous long-term effects. Of the original sample, one-third had already died. Those children of the sample who where still in the foundling home were severely retarded. Although they were between two and four years old, just half of them could eat with a spoon, only one child was able to speak whole

sentences, and all children were small and thin for their age. Spitz noted that, although after 15 months of relative isolation the children were placed in a common room, this did not help them, and he ventured that damage done in the first year could never be repaired (Spitz, 1945b, p. 116). Again, he made a comparison with the children in the nursery, who "ran lustily around" and "played lively social games" (ibid., p. 116). All in all, these first two papers created the impression that infants need their mothers to take care of them and that without care by the mothers, or their substitute, they suffer irreparable damage.

In his next paper, Spitz (1946) described a quasi experimental manipulation that supported his viewpoint. According to his account, a number of children who previously had been happy in the penal nursery suddenly developed symptoms very similar to those of what in adults is called a depression. They showed sad faces, loss of appetite, insomnia and a "weepy behavior that was in marked contrast to their previously happy and outgoing behavior" (ibid., p. 313). After some time, the weepiness gave way to withdrawal and, in some cases, autoerotic activity. It proved increasingly difficult to make contact with the withdrawn infants and, if the adult succeeded in breaking through the child's apathy, it was hard to leave the child again as he or she would desperately cling to the adult. Spitz (1946, p. 320) noted that the syndrome was "extremely similar" to what had been described by Abraham and Freud as mourning, pathological mourning, and melancholia. Retrospectively, in Spitz's account one can recognize elements of the first two stages from the sequence of protest, despair, and denial described by Robertson and Bowlby in the late 1940s and early 1950s (Van der Horst & Van der Veer, 2009b).

As Spitz revealed after his description of the symptoms, in all cases they followed a prolonged absence of the mother, i.e., up to four months. Reunion with the mother ensured a quick recovery of the child. All symptoms disappeared and Spitz (1946, p. 330) measured a spectacular rise in DQ within 12 hours. He, consequently, felt justified to conclude that the syndrome was caused by the absence of the "love object for an appreciable period of time during their first year of life" (ibid., p. 320) and that reunion with the mother led to its rapid disappearance. In other words, at this age prolonged separation from the mother should be avoided and, if at all necessary, care should be taken to provide a good substitute mother (ibid., p. 335).

From a methodological viewpoint, Spitz's papers left much to be desired. Pinneau (1955a, 1955b; cf. Spitz, 1955) carefully analyzed Spitz's papers and showed a large number of inaccuracies, errors, and inconsistencies. It is probably safest to take all numbers provided by Spitz with a pinch of salt. Also, on the basis of Spitz's account of the data it is hazardous to draw any causal inferences. Finally, the analysis of behavioral symptoms in terms of oral biting, anal-sadistic manifestations, libidinal cathaxis, and so on, was not very appealing to non-psychoanalysts. However, Spitz's clinical description of a lonely and

possibly depressed infant was excellent and his subsequent silent film *Grief: A peril in infancy* (Spitz & Wolf, 1947) proved utterly convincing.

THE UPS AND DOWNS OF JANE

In his film, Spitz explained that infants who are left by their mother feel like "a school child suddenly orphaned of both parents, dumped on another continent, in an alien environment where nobody speaks its language and customs and food are foreign." Next, the film showed baby Jane in her crib, who seemed happy and willing to interact with a strange person (i.e., Spitz himself). The text explained that Jane's mother was "suddenly forced to leave the baby in the care of strangers"[2] and the film subsequently showed images of a very unhappy Jane who was crying and didn't want to interact with strange persons. It was explained that this behavior lasted for the full three months of her mother's absence. By the end of the film, Spitz stated that reunion with the mother could undo the sadness within a few days and the film showed images of a very happy Jane again.

The images of Jane were clear enough, but they were followed by footage of babies who were in a much sadder state. Spitz explained that, if separation would last much longer than three months, the child would assume a "frozen, passive, apathetic attitude" and contact with such children would become "impossible." The film then showed six infants from "a foundling home," who displayed clear signs of pathology. The infants showed an empty gaze, made strange finger movements, rocked their bodies, shook their heads rhythmically, paid no attention to adults, and so on. Spitz made it very clear how the audience had to interpret the silent images. According to the explanatory text plates of the film, adequate physical care was not the issue: all foundlings grew up in an "institution, where excellent hygiene, ample medical attention and varied food in adequate quantity was offered the children." What the infants needed, according to Spitz, was motherly love, because

> it is the emotional climate created by the mother which enables the child's mind to develop normally. Where this emotional climate is lacking, the baby's mind cannot develop properly. If it grows up it may become mentally impaired, asocial, criminal, or insane. Where the emotional climate is good it will produce happy, active, intelligent children. (Spitz & Wolf, 1947, film text)

It was a simple and powerful message that must have convinced many people of the dangers of both short-term and long-term separation from the mother or mother substitute. Children who are left by their mother for a short period become unhappy and depressed.

[2] It is likely that Jane belonged to the infants who lived with their mothers in the penal nursery. One may wonder how 'sudden' her mother's mysterious forced absence was, given that Spitz and his team were in time to film Jane before her mother left.

Children who grow up without a mother figure run the risk of becoming permanently emotionally damaged. Hence, institutional care is dangerous for children and, ultimately, for society, for it produces adults who will display asocial behavior and, perhaps, commit criminal acts.

IMPACT OF SPITZ'S EARLY PAPERS AND FILMS

There seems little doubt that Spitz's articles and films[3] fueled the debate in the United States about the possible dangers of institutional childcare. In that respect, they fulfilled the same function as Bowlby's and Robertson's papers and films in the United Kingdom (Van der Horst & Van der Veer, 2009a, 2009b). In an interview, Bowlby expressed his conviction that Spitz's role in the US was very prominent:

> I may have said this before—I think one can't place too much emphasis on the importance of geography. You know, traditions which are immensely important in the States are of no consequence over here; traditions which are immensely important over here are of no consequence in the States. And it's fair to say as regards maternal deprivation and all that sort of thing, in this country it's associated with my name and in the States it's associated mostly with Spitz's name. (Smuts, 1977, pp. 25-26)

Bowlby himself knew Spitz's writings quite well. Bowlby had consulted Spitz personally in March 1950 while traveling to the US for his WHO assignment, and in his concluding report he discussed Spitz's work—as well as the work of, for example, Bakwin and Goldfarb—as the latest word on the effects of deprivation on infants (Van der Horst, 2011). Spitz's 'direct observations', as Bowlby labeled them, led Bowlby to conclude that "the evidence is now such that it leaves no room for doubt… that the prolonged deprivation of the young child of maternal care may have grave and far-reaching effects on his character and so on the whole of his future life" (Bowlby, 1952, p. 46). So, arguably, through the WHO report, Spitz's work had an effect outside the US as well and directly influenced Bowlby's thinking. Also, Spitz's cinematic presentation of Jane was remarkably similar to that of the later little Laura in Robertson's (1952) film *A two-year-old goes to hospital*.

Spitz's belief that children separated from their mothers, or maltreated by their mothers, would grow up "mentally impaired, asocial, criminal, or insane" was also widely accepted in the 1930s and 1940s. Bowlby's (1944, 1946) early empirical study on the origins of juvenile delinquency essentially shared the same view. The leading expert in investigating the psychological causes of delinquency, Cyril Burt, professed the idea that the causes of delinquency often lie in the family and argued that it was the parents,

[3] After "Grief: A peril in infancy" Spitz produced two more films on the subject of maternal deprivation: *Somatic Consequences of Emotional Starvation in Infants* (1948) and *Psychogenic diseases in infancy: An attempt at their classification* (1952) Both proved less influential, possibly because to a large extent they showed the same sequences as the 1947 film.

more than the children, who required treatment (e.g., Burt, 1925). The Child Guidance Clinics in both the UK and the US used a multidisciplinary approach and explicitly looked at parental attitudes and actions as factors potentially contributing to children's 'difficult' or criminal behavior (Van der Horst, 2011; Van der Horst & Van der Veer, 2010). Thus, one may conclude that Spitz's observations and findings confirmed an explanatory model that was supported by leading experts, such as Burt and Bowlby, and lay at the basis of much clinical work.

MONKEYS AND SEX: WHY WIRE MOTHERS WILL NOT DO

In 1949, Spitz and Wolf published a sequel to Spitz's first two papers on the hospitalism syndrome that was somewhat peculiar. It now turned out that not all was well in the penal nursery and that many children were not 'running lustily around' and 'playing lively social games' but, on the contrary, showed signs of severe pathology. The authors reported that they had observed 170 infants up to 15 months old in the penal nursery for four hours per week during one year. As psychoanalysts, they were interested in what they called 'autoerotic activities', which included rocking, genital play, and fecal games. Genital play and fecal games were rarely observed however, which left rocking as the main autoerotic activity. This was observed in some 100 infants.

But why did some infants rock while others did not? The authors preferred to focus on the infants' mothers as the distinguishing factor, and decided to compare the nursery infants' behavior with that of infants living in private homes and in a foundling home. Spitz and Wolf found that 16 of 17 infants from private homes and only 1 of 61 foundlings manifested genital play, which suggested that autoerotic behavior co-varies with "the patterns of emotional relations between mother and child" and that a satisfactory mother-child interaction is necessary for autoerotism to occur (Spitz & Wolf, 1949, p. 97). What about the mother-child interaction in the penal nursery? They explained that the mothers had been penalized for motherhood and separated from their partners. So, as distinct from normal mothers, the nursery mothers possibly blamed their infants for being in the penal institution and for not having sexual partners on whom to discharge their libidinal and aggressive drives in healthy sexual activity (ibid., p. 98). This led the mothers in the penal nursery to show both hostility and overprotection, often in alternation, which was highly damaging to their infants. Thus, rocking was caused by inconsistent and ambivalent mothers who became so unpredictable for the child as to preclude a normal mother-child relationship. Why normal, close mother-child relationships lead to genital play in infants remained unclear (Spitz and Wolf, ibid., pp. 102-103).

However, from the clinical perspective, we may conclude that Spitz and Wolf provided a picture of ambivalent motherhood and its alleged effects on what was called autoerotic behavior. Much later, attachment researchers would put the investigation of

ambivalent mother behavior on more solid ground and investigate its general effects on the child's development, for example in the work of Mary Ainsworth and colleagues (Ainsworth et al., 1978).

In 1962 Spitz published a paper in which he re-examined his earlier findings on autoerotism in light of Harlow's findings in, amongst other studies, the *Nature of love* (1958) and attempted to draw some conclusions as to this phenomenon in normal development. After a brief summary of his 1949 paper with Wolf, he observed that Harlow's rhesus monkeys showed deviant sexual behavior, which was "strikingly parallel" (Spitz, 1962, p. 286) to his own published and unpublished findings about human infants. Referring to various manuscripts and published papers by Harlow (1959, 1960a, 1960b, 1960c, 1960d, 1960e, 1962) and his own findings, Spitz (1962) argued that he could now "throw additional light on the problems surrounding masturbation and its role in the development of man" (p. 286). What followed was an account of Harlow's experiments with wire surrogates and the inability of rhesus babies thus raised to achieve normal sexual behavior as adults. Spitz then argued that Harlow's findings, in a way, complemented his own and that, perhaps, non-autoerotic human foundlings grow up to become sexual failures as well. The fact that Harlow never mentioned masturbation suggested to him that in surrogate-raised monkeys it was not very prevalent either (ibid., pp. 290-291). The problem then became: what is it in a normal mother's behavior that promotes early autoerotic behavior in her child and why is early autoerotic activity important? Here Spitz developed an interesting hypothesis about the need for reciprocity in the mother-child relationship. In contradistinction to a surrogate wire mother, a real mother offers comfort, warmth, and body contact but also frustrates her infant regularly because she has other things to do or disapproves of the child's actions (ibid., pp. 293-294).[4] This enables the infant to overcome its narcistic tendencies and to develop the distinction between self and non-self, between ego and id, and to create a superego. In other words, mother-child conflicts are essential for normal child development to occur and unrestricted gratification probably hinders personality development (ibid., pp. 299-300). Spitz admitted that he still did not understand why motherless infants display no autoerotic activity—"where in this picture the implementation of the sexual drive starts, is something we can only guess"—but suggested that it had something to do with licking and grooming (ibid., p. 294). He was convinced, however, that mild frustration of the sexual drive was benevolent for personality development. The absence of such a drive thus precluded normal development and Spitz submitted that genital behavior was both an indicator of preceding object relations and a predictor of future personality (ibid., p. 300). As a

[4] Referring to Harlow's experiments with two wire mother-raised monkeys in the same cage, who would cling together but end up as helpless in the sexual domain as single wire mother-raised monkeys, Spitz (1962, pp. 292-293) speculated that there is something special about the mother-child relationship which distinguishes it from a relationship with peers.

consequence he advised to both accept masturbation as part of normal child development and to restrict it.

Spitz's article was full of wild speculations and/or psychoanalytic reasoning and he had no sound data to go by. He knew nothing of the early erotic behavior of Harlow's wire mother-raised monkeys, nor of the adult sexual behavior of human children raised in foundling homes. But the allegedly absent autoerotic behavior in foundlings and the inability to mate in adult wire mother-raised rhesus monkeys were grist to his psychoanalytic mill and he showed no hesitance in positing that the animal and human data could complement each other. However, his idea that a mother-child relationship requires reciprocity, i.e., that a good mother provides both warmth and comfort and frustration was interesting. Also, his guess that mother-child relations are qualitatively different from peer relationships proved valid (cf. Suomi, Van der Horst & Van der Veer, 2008; Suomi, personal communication, September 27, 2006).

SPITZ AND HARLOW MEET

The fact that the inveterate psychoanalyst Spitz referred to the experimental psychologist Harlow may seem odd but, in fact, after a brief meeting with Harlow at a symposium of the American Association for the Advancement of Science on the Expression of Emotions in Animal and Man in New York on December 29-30, 1960 and the reading of a popular article on his work in the *New York Times Magazine* (Engel, 1961), Spitz had taken great interest in Harlow's investigations (Spitz in a letter to Harlow, dated February 13, 1961). Harlow's findings may have been particularly welcome after Pinneau's (1955a, 1955b) severe criticism of the validity of Spitz's own studies (see above). As Spitz wrote to Harlow before he published his re-examination of autoerotism:

> I am not sure whether you are aware of my work on emotionally deprived infants. If you are, you probably realize that your work comes as extraordinarily welcome confirmation of everything which I have found in the human infant, when placed in similar circumstances. That applies to the monkeys' asocial behavior, to their apathy, their strangely contorted position, their incapacity to play, or to form relationships. It interestingly also applies, though in somewhat modified form, to the surrogate-raised monkey's incapacity to breed. (Spitz in a letter to Harlow, dated February 13, 1961)

Spitz then told about his research on autoerotic behavior and once again wondered whether Harlow knew his work of the "last 16 years," which was devoted to identifying the origin of mental illness in young children.

In his reply, Harlow answered that he had at least "a general knowledge" of Spitz's work and that it formed one of his "strong motivations to attempt to attack this problem." Harlow too, he wrote, had time and again been "struck by the basic similarity

of our monkey 'syndromes' and the syndromes described by you for affectionally deprived human infants" (Harlow in a letter to Spitz, dated February 20, 1961). Several years later, in another letter, Harlow once more confirmed the importance of Spitz's contributions for his own thinking:

> [L]et me assure you that your research has been a great inspiration and that your friendship has been a relationship of great meaning. I have vast faith in the research area that you have established and I will do my very best to forward it. (Harlow in a letter to Spitz, dated January 22, 1963)

These statements seem to point to more than simple courtesy; they imply the acknowledgement by Harlow of a genuine influence of Spitz's work on his own research. Others, such as Bowlby, were indeed convinced that Harlow was inspired by Spitz's work (cf. Karen, 1994; Rudnitsky, 1997; Smuts, 1977; Zazzo, 1979). However, even though Harlow clearly appeared to be familiar with Spitz's hospitalism during a discussion at the CIBA–symposium in 1961 (Foss, 1963), actual references to Spitz's work in Harlow's published papers appeared only much later. In the 1970s, he increasingly began referring to Spitz's work, mainly to the 1946 paper *Anaclitic depression* (e.g., Suomi, Harlow & Domek,1970; Harlow & McKinney, 1971; Harlow & Suomi, 1971; Harlow, Gluck & Suomi, 1972; Suomi & Harlow, 1972; Gluck, Harlow & Schiltz, 1973; Harlow, Plubell & Baysinger, 1973; Suomi, Collins & Harlow, 1973; Harlow & Novak, 1973; Harlow & Suomi, 1974). Other studies refer to Spitz's 1945 paper *Hospitalism* (e.g. Gluck, Harlow & Schiltz, 1973) or to his 1950 paper "Anxiety in infancy" (e.g. Suomi, Collins & Harlow, 1973). Maybe this delay in referring to Spitz's work finds its cause in the fact that Harlow's initial isolation studies were motivated by studying learning in an uncontaminated environment, and only later, when John Bowlby had pointed out to Harlow that the isolated monkeys suffered from social and emotional problems, did Harlow start studying those aspects of isolation systematically (Suomi, Van der Horst & Van der Veer, 2008)

SCIENTIFIC INTERACTION AND MORE

Those first personal letters formed the beginning of a genuine intellectual friendship. The two researchers corresponded about scientific issues, exchanged mimeographed articles and drafts, and repeatedly met each other in the years that followed.

The topic of sexual behavior was, of course, crucial for Spitz and the first reason why he turned to Harlow. The latter confessed that they had made "only the barest beginning in this area—insofar as sexual behavior is concerned—and our experimental data are limited." Harlow mentioned, however, that he was constructing an experimental setup to measure the sex behavior of all the wire mother-raised babies,

which he hoped would yield interesting data within three months or so (Harlow in letters to Spitz, dated February 20 and March 10, 1961).

The first opportunity to discuss these data in person was during Harlow's visit to the University of Colorado Medical School, where he was scheduled to speak on May 22-25, 1961. Spitz was stationed in Denver at that time, attended Harlow's talks, and talked to him in person (cf. Spitz in a letter to Harlow, dated July 15, 1961). Thus, after a brief personal meeting late 1960 and a couple of tentative letters, the stage was set for a more comprehensive exchange of ideas. Within a couple of months, the earlier formal salutations and closings had given way to informal ones (e.g., "Dear Harry, dear René") and the foundation had been laid for further cooperation and friendship.

Given the new friendly relationship between the two men, it comes as no surprise that Harlow informally updated Spitz on the latest, unpublished findings of his ongoing 'motherless mothers' project:

The oldest of the three babies of our 'motherless mothers' is now less than a month of age and the youngest a little more than a week. So there will be some time before formal publication, indeed, we don't yet have enough data to start drawing up graphs, but I will keep you up to date as the data come along and if you wish to cite these data as a personal communication, I would be delighted. The two oldest mothers have, for all practical purposes, have [sic] become completely indifferent to their babies, and an extremely interesting pattern has developed between the third mother and baby. All of the babies struggled desperately to obtain maternal contact, and the heroic efforts of the third baby were such that it has been able to make breast contact with the mother and we are hopeful it will survive without recourse to artificial feeding. From time to time we see the baby attached to one breast and the mother sucking from the other, and we have seen self-sucking in at least one other mother. During the time that the baby is attached to the breast, the mother shows some weak defensive reflexes against human beings and possibly some interest in the baby. However, when the baby attempts to make contact, the mother is just as likely to be violently abusive as to be acceptant. Thus, one may see the mother sitting down or hanging from the top of the cage by her feet and beating this baby with her hands—this is not very good maternal behavior—and this mother, which is the most acceptant is also the most cruel. Actually, some of the vicious behavior of the mother is so bad that it is hard for human observers to sit, watch, and take it.

> We have every reason to think now that we can build a population of babies of motherless mothers since our cloth surrogate raised females—at least some of them—are willing to accept rape as a fact of life and one has learned to enjoy it. (Harlow in a letter to Spitz, July 20, 1961)

Harlow and Spitz now corresponded on a regular basis, exchanged manuscripts and films, and Spitz made every effort to invite Harlow to Switzerland, where he now lived, to give a presentation about his latest research. After failures to interest the psychoanalytic group in Zurich (with Jacques Berna and others), and an unsuccessful conversation with Jean Piaget ("...who will be completely unreachable, sitting somewhere lost in the mountains and writing"; Spitz in a letter to Harlow, dated June 24, 1964), Spitz finally managed to organize a meeting at Julian de Ajuriaguerra's *Clinique de Bel-Air* (nowadays *Clinique de Belle-Idée*) in Geneva. With the help of Spitz, who served as his interpreter, Harlow there presented his research findings to an audience of psychoanalysts and neurologists. With his wife Peggy (Margaret), he also spent an evening with Spitz and judging by the correspondence (Spitz in a letter to Harlow, dated September 2, 1964; Harlow in a letter to Spitz, dated September 23, 1964), both the formal and informal part of the Harlows' stay in Switzerland were a complete success.

Rather surprisingly, Harlow's stay in Geneva and his friendship with Spitz had still other consequences. In one of his subsequent letters, Harlow mentioned to Spitz that his wife had

> had time to go back and read some of Freud in the original. This has been a very illuminating experience for both of us. If one reads psychiatric literature without bias it is often an educational experience. I am sure this discovery causes you no surprise! (Harlow in a letter to Spitz, dated January 29, 1965)

Naturally, Spitz was extremely pleased that he made Harlow (or rather, his wife, Harlow himself read no foreign languages) read Freud's original writings. In his reply, he wrote

> I am delighted that I could have been instrumental in getting you and Peggy acquainted with Freud in the original. You have discovered that we psychiatrists and even we psychoanalysts are not as black as we are painted! And what is happening here is what I have worked at in the last 30-40 years, namely interdisciplinary communication between the branches of science occupied with mental functioning, that is, psychology, animal psychology, etiology, psychiatry, psycho-analysis, and so on and so forth. A major synthesis is bound to come about sooner or later. (Spitz in a letter to Harlow, dated February 2, 1965)

In hindsight, we can conclude that it would be Bowlby who, at least in the domain of theory, contributed most to this "major synthesis." However, Spitz with his preference for empirical observation, filmed testimonies, and his interest in animal

research[5] certainly made his contribution and in that quality seems to have been highly valued by Harlow.

Perhaps the greatest tribute that Harlow paid to Spitz was the fact that he published a chapter, co-authored with his wife, in the *Festschrift* that was published in honor of Spitz's 80th birthday (De Saussure & Spitz, 1967). In that chapter, Harlow argued—referring to publications by both Spitz and Bowlby—that the expression of fear and aggression in rhesus monkeys is abnormal in monkeys who have been separated from their mothers for longer periods during infancy. The letter in which Spitz thanked the Harlows for their "lovely gift" formed the end of their correspondence as we know it (Spitz in a letter to Harlow, March 13, 1967).

CONCLUSION

The fact that René Spitz and Harry Harlow each strongly inspired, and were inspired by John Bowlby is well-known (Van der Horst & Van der Veer, 2008; Van der Horst, Leroy & Van der Veer, 2008) In this contribution, however, we have looked at the reciprocal influence of Harlow and Spitz concerning the consequences of maternal deprivation of monkeys and men. The recently disclosed correspondence between Harlow and Spitz shows that from the early 1960s on the two researchers corresponded about scientific issues, exchanged publications, met repeatedly and developed a close intellectual friendship. In spite of their age difference and seemingly incompatible backgrounds (Spitz a psychoanalyst and Harlow an experimental psychologist) they clearly held each other in high regard. Apart from Harlow and Spitz inspiring each other, Harlow's empirical findings supported Spitz's theory about the origin of child psychopathology in inadequate or absent mother-child interactions, and Spitz's observational studies supported the "translation" of Harlow's findings from monkeys to men. Despite coming from totally different directions, they managed to reinforce each other in conveying the clear message that maternal deprivation can cause serious damage to the child involved.

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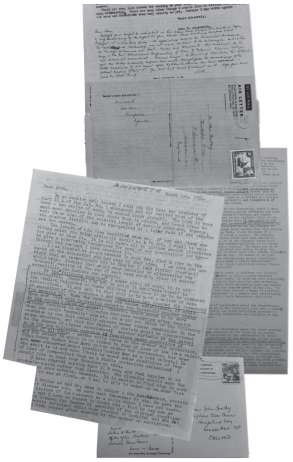
[5] It is curious that Spitz in his list of disciplines contributing to the 'major synthesis' does not mention ethology, given that, according to Emde (1992, p. 355), Konrad Lorenz, the founder of ethology, belonged to his personal friends.



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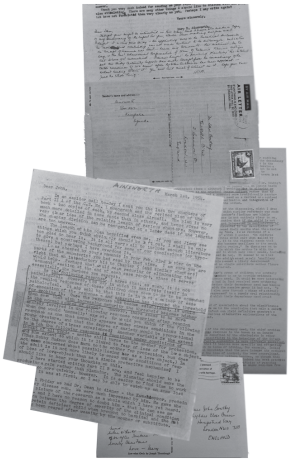
All Ainsworth correspondence resides in the Archives of the History of American Psychology at the University of Akron, Ohio; all Bowlby correspondence resides in the Wellcome Library in London, UK; all Harlow correspondence resides in the Harlow Archives in Madison, Wisconsin.



Samenvatting

(Summary in Dutch)

Gedurende de laatste decennia is het steeds duidelijker geworden dat de rol van Mary Ainsworth (1913-1999) bij het ontwikkelen van de gehechtheidstheorie wordt onderschat. De gehechtheidstheorie wordt algemeen beschouwd als één van de meest invloedrijke theorieën binnen het vakgebied van de pedagogiek, de ontwikkelingspsychologie en de psychiatrie en beschrijft hoe de vroege sociaal-emotionele ontwikkeling van kinderen een essentiële rol speelt in het later persoonlijk en intermenselijk functioneren. Vroege ervaringen in de relatie met opvoeders zijn van belang bij de ontwikkeling van het zelfbeeld en hebben tevens invloed op relaties en vriendschappen die het kind op latere leeftijd aangaat. Over het algemeen wordt John Bowlby (1907-1990) gezien als de grondlegger van de gehechtheidstheorie. Ainsworth zou hebben bijgedragen met een gedeeltelijke empirische onderbouwing vanuit haar studies in Oeganda en Baltimore, het ontwerpen van de Vreemde Situatie Procedure en aandacht voor sensitiviteit van de ouder. Niet algemeen bekend is dat Ainsworth ook in belangrijke mate inhoudelijk heeft bijgedragen aan de theorie zelf. Dit wordt goed duidelijk als we kijken naar Ainsworth's werk vóór haar ontmoeting met Bowlby in 1950. In dit proefschrift wordt onder andere het werk van Ainsworth met William Blatz in Toronto van 1930-1950 belicht. Hierdoor zijn wij in staat om een nieuw perspectief te bieden op de historiografie van de gehechtheidstheorie.

Dit proefschrift bestaat uit vier hoofdstukken, die elk in een ander wetenschappelijk tijdschrift of boek zijn gepubliceerd of zijn aangeboden ter publicatie. Het gevolg is dat zij gedeeltelijk overlappen en niet logisch in elkaar overlopen. In deze samenvatting worden enkele bevindingen uit de vier hoofdstukken belicht.

HISTORISCHE CONTEXT

Voor een goed begrip van het ontstaan van de gehechtheidstheorie is een schets van de historische context nodig. Aan het eind van de 19e eeuw was in Europa en in de Verenigde Staten een sterke verbetering van de volksgezondheid te zien, onder meer dankzij de toenemende medische kennis en een betere openbare hygiëne. Men leek grip te krijgen op de gezondheid van het lichaam en veronderstelde dat dit tevens mogelijk moest zijn met de gezondheid van de geest. De *Mental Hygiene Movement* vestigde de aandacht op de geestelijke gezondheid. Tegelijkertijd was de psychoanalyse in opkomst: Sigmund Freud herleidde psychische problemen van volwassenen naar echte of ingebeelde gebeurtenissen die plaats hadden gevonden tijdens de kinderjaren. Met toenemende interesse bestudeerde men de ontwikkeling van jonge kinderen, in de hoop dat dit inzicht zou kunnen geven in de optimale manier om gezond van geest op te groeien. Langzaam maar zeker vatte het idee post dat de ontwikkeling van kind tot volwassene voor het grootste gedeelte bepaald werd door de opvoeding. Het is dus geen wonder dat men in de eerste helft van de 20ste eeuw bij het zoeken naar verklaringen

voor psychische problemen de aandacht vestigde op wat er allemaal binnen het gezin gebeurde en dan vooral op de relatie tussen het kind en de moeder. Tegen deze maatschappelijke achtergrond ontwikkelden Blatz, Bowlby en Ainsworth hun ideeën.

AINSWORTH'S STUDIE EN WERK IN CANADA MET BLATZ, 1930-1950

Mary Dinsmore Salter werd geboren in 1913 in Glenville, Ohio, maar in 1918 verhuisde het gezin naar Toronto in Canada. Op 16-jarige leeftijd begon Ainsworth haar studie aan de Universiteit van Toronto en volgde onder andere colleges bij William Emet Blatz (1895-1964). Blatz was aangesteld door de Canadese *Committee for Mental Hygiene* en was vooral bekend om zijn *Security Theory* die hij had ontwikkeld om goed in kaart te kunnen brengen hoe een gezonde geestelijke ontwikkeling het best tot stand kon worden gebracht, beginnend in de kindertijd. *Security*[6] beschreef hij als 'een staat van bewustzijn die vergezeld gaat van een bereidheid de consequenties van je daden en beslissingen te accepteren'. Naast een bereidheid deze consequenties zelf te accepteren kun je ook *security* ervaren als je zeker weet dat een ander die consequenties voor jou op zich zal nemen, zoals een moeder voor een kind doet. In dat geval sprak Blatz van *dependent security* (afhankelijke *security*). Kinderen zijn in het begin volledig afhankelijk van hun ouders, maar als het kind zich zeker voelt van het feit dat de ouder er voor hem is, ongeacht de situatie, dan zal het kind steeds meer explorerend gedrag gaan vertonen en de ouder gebruiken als een veilige basis (*secure base*). Door dit ontdekken leert het kind en doet het steeds meer vaardigheden op, die zijn gevoel van zelfvertrouwen en *security* doen toenemen en er vindt dan langzaam een verschuiving plaats van afhankelijk *secure* naar onafhankelijk *secure*. Desalniettemin gaf Blatz toe dat volledig onafhankelijke *security* niet haalbaar was en mensen voor *security* altijd gedeeltelijk afhankelijk blijven van vrienden of familie. Mensen die een gezonde mate van *security* niet bereiken blijven ofwel te veel op anderen leunen, of gebruiken afweermechanismen zoals ontkenning, verdringing of compensatie. Omdat deze afweermechanismen lang niet altijd werken, liggen mentale en sociale problemen voor deze mensen op de loer. Volgens Blatz was het goed mogelijk om op het ene gebied wel *secure* te zijn en op een ander gebied niet. Hij onderscheidde vijf gebieden of domeinen waarin men *secure* kan zijn: familie, vrienden, werk of studie, hobby's, en levensovertuiging.

[6] *Security*, zoals Blatz die bedoelde, laat zich niet makkelijk naar het Nederlands vertalen – het betekent niet *veiligheid*, omdat iemand die veilig is, zich bewust is van en misschien bang is voor wat er buiten die veilige omgeving bestaat. Het is mengeling van *(zelf)vertrouwen, (zelf)verzekerdheid*, en de *afwezigheid van angst*. In deze samenvatting wordt daarom noodgedwongen de originele Engelse term *security* aangehouden.

Blatz wilde graag de mate van *security* bij mensen kunnen meten, en begeleidde Ainsworth van 1936-1939 bij haar promotieonderzoek, waarvoor zij verschillende vragenlijsten ontwikkelde die de *security* van jong-volwassenen zouden moeten kunnen meten op de gebieden van familie en vrienden. Hoewel de vragenlijsten waren ontworpen met de bedoeling een lineaire maat voor *security* te verkrijgen, zag Ainsworth echter ook duidelijk patronen ontstaan, dus groepen mensen die op dezelfde manier omgingen met hun *security* of *insecurity*. In hoofdstuk vier van dit proefschrift hebben wij gekeken naar de eventuele huidige bruikbaarheid van Ainsworth's vragenlijsten. We hebben 247 studenten de originele vragenlijsten van Ainsworth laten invullen en daarnaast, ter vergelijking, ook de korte versie van de ECR-RS (*Experiences in Close Relationships inventory*, Fraley et al, 2011) We hebben met de huidige digitale mogelijkheden voor statistische analyse (die Ainsworth niet tot haar beschikking had) een factoranalyse uitgevoerd met de items uit haar vragenlijsten en vonden 16 items die samen binnen één schaal pasten en die we de *Ainsworth Security Questionnaire – Revised* (ASQ-R) hebben genoemd. Deze ASQ-R had een negatieve correlatie met de bestaande ECR-RS schalen voor angst (*anxiety*) en vermijding (*avoidance*), hetgeen de convergente validiteit ondersteunt. Er blijft desondanks twijfel bestaan over de geschiktheid van zelfrapportage vragenlijsten om veiligheid van gehechtheid vast te stellen en het Gehechtheidsbiografisch Interview (George, Kaplan, & Main, 1985) lijkt een beter alternatief. Dit interview is echter zeer kostbaar en tijdrovend en voor een eerste screening zou een instrument als de ASQ-R bruikbaar kunnen blijken, mede omdat resultaten van de ECR, die zich niet alleen richt op de relatie met de ouders, maar ook op vriendschaps- en romantische relaties, vaak weinig voorspellende waarde lijken te hebben voor de resultaten uit het Gehechtheidsbiografisch Interview.

Na haar promotie in 1939 bleef Ainsworth werkzaam als docent aan de Universiteit van Toronto, maar tijdens de tweede wereldoorlog vervulde ze van 1942 tot 1946 verschillende functies in het leger en behaalde de rank van majoor. Ze was onder andere actief bij personeelsselectie waar ze testen en interviews afnam. Ze kwam daarna terug bij de Universiteit van Toronto om onder andere samen met Blatz studenten te begeleiden bij het ontwikkelen van verschillende instrumenten om *security* te meten. In 1950 trouwde ze met één van die studenten, Leonard Ainsworth en ze verhuisde met hem naar Londen, waar hij zijn promotieonderzoek kon doen.

AINSWORTH IN LONDEN MET BOWLBY

Ainsworth reageerde in Londen op een advertentie en vond zo werk bij John Bowlby (1907-1990) in de Tavistock Clinic. Bowlby deed in die tijd onderzoek naar de effecten van (tijdelijke) scheiding tussen moeder en kind (onder andere met James Robertson, beroemd om zijn film 'A two-year-old goes to hospital'). Hier leerde

Ainsworth voor het eerst om onderzoek te doen door middel van directe observatie in plaats van door het laten invullen van vragenlijsten – een les voor het leven. Via Ainsworth leerde Bowlby over de *security theory* van Blatz. In het eerste artikel dat Ainsworth en Bowlby samen schreven (1954) wordt de term *gehechtheid* nog niet gebruikt – in plaats daarvan verwijzen ze naar Blatz en spreken van een *secure dependency relationship*. Pas in een latere publicatie besluiten ze om het woord *dependency* te vervangen door het woord *attachment* (gehechtheid). In 1953 vertrokken de Ainsworths uit Londen en verhuisden naar Oeganda, alwaar Leonard zijn volgende betrekking had gevonden. Dit betekende echter niet het einde van de samenwerking tussen Ainsworth en Bowlby, zoals we verderop in deze samenvatting zullen zien.

AINSWORTH IN OEGANDA EN BALTIMORE

Geïnspireerd door het werk met Bowlby besloot Ainsworth om in Oeganda een studie te doen naar het ontstaan van de band tussen moeder en kind en ze observeerde 26 moeder-kind paren twee-wekelijks in de thuisomgeving. Ze constateerde onder andere dat de kinderen die de beste band met hun moeder hadden, ook het makkelijkst exploratief gedrag vertoonden en minder van streek raakten als moeder even uit zicht was, of zich bij haar terugkeer snel door haar lieten troosten. Ze probeerde deze band, die ze later *gehechtheid* noemde, in kaart te brengen. Ze bestudeerde hoe de kinderen de moeder als een veilige basis gebruikten, het fenomeen waarover ze van Blatz had geleerd. In 1956 verhuisden Ainsworth en haar man naar Baltimore waar zij het onderzoek dat ze in Oeganda had uitgevoerd, repliceerde. Opnieuw onderzocht ze 26 moeder-kind paren en bestudeerde de ontwikkeling van de moeder-kind band tijdens thuisobservaties. Het onderzoek in Baltimore was uitgebreider dan het onderzoek in Oeganda en Ainsworth zag kans meer aandacht te besteden aan het observeren en meten van de sensitiviteit van de moeder – ze ontwierp hiervoor een aparte sensitiviteitsschaal. Het is niet verwonderlijk dat Ainsworth sensitiviteit van belang achtte: Blatz schreef herhaaldelijk in zijn adviesboeken dat je als ouder je uiterste best moet doen om te begrijpen waarom kinderen reageren zoals ze doen en, indien mogelijk, de omstandigheden zo zou moeten aanpassen dat zij aansluiten bij het kind en niet andersom (Blatz, 1929, 1931, 1944). Om het totale onderzoek empirisch sterker te maken, voegde ze er ook een objectieve meting in het laboratorium aan toe, de Vreemde Situatie Procedure. Over dit instrument en het ontstaan ervan gaan hoofdstuk twee en drie van dit proefschrift, zie later in deze samenvatting.

Zoals gezegd, de samenwerking tussen Ainsworth en Bowlby hield niet op toen Ainsworth naar Oeganda verhuisde. Vanaf de tijd dat zij uit Londen vertrok correspondeerden Ainsworth en Bowlby veelvuldig met elkaar. Uit deze brieven is op te maken hoe de gehechtheidstheorie zich ontwikkelde. Ainsworth en Bowlby wisselden

voortdurend ideeën uit, vroegen elkaar om commentaar en corrigeerden elkaars werk. Deze wederzijdse invloed is duidelijk zichtbaar in de artikelen en boeken die Ainsworth en Bowlby vanaf de jaren vijftig hebben geschreven. Vooral de brieven waarin ze hun gedachtengang uiteenzetten geven een goed beeld van ieders inbreng. In Ainsworth's brieven aan Bowlby zien we duidelijk keer op keer verwijzingen naar de *security theory* van Blatz en we zien het belang dat Ainsworth hechtte aan het gebruik van de moeder als een veilige basis en het sensitief reageren van de moeder op signalen van het kind. Ook zette Ainsworth in haar brieven uiteen hoe ze verschillende instrumenten ontwikkelde om *security* en later gehechtheid, maar ook sensitiviteit te meten. Bowlby's schreef vooral over zijn bevindingen naar aanleiding van de onderzoeken naar de effecten van moeder-kind scheidingen (waarbij hij veel samenwerkte met James Robertson), en beschreef zijn groeiende inzichten met betrekking tot de ethologische grondslag van de moeder-kind band. Bowlby zag hierdoor steeds duidelijker een evolutionaire basis voor zijn theorie.

De gehechtheidstheorie, die door dit uitwisselen van gedachten door Ainsworth en Bowlby langzaam stevig vorm begon te krijgen, werd versterkt door de gegevens die Ainsworth had verzameld in Oeganda in 1954-1955, en daarna in Baltimore in de jaren '60. Deze gegevens brachten gehechtheidsgedrag in kaart en zorgden voor een empirische basis van de gehechtheidstheorie. De Vreemde Situatie Procedure die Ainsworth en haar assistent Barbara Wittig hadden bedacht als onderdeel van de Baltimore studie zorgde ervoor dat het concept *gehechtheid* meetbaar werd en sloeg daardoor een brug naar de empirische praktijk. De Vreemde Situatie Procedure is vandaag de dag het meest gebruikte instrument om de kwaliteit van de gehechtheidsrelatie te meten.

DE VREEMDE SITUATIE PROCEDURE (VSP)

De Vreemde Situatie Procedure (*The Strange Situation Procedure*) wordt gedaan als het kind twaalf tot achttien maanden oud is. De procedure bestaat uit acht observatie-episoden (in totaal twintig minuten), waarin een moeder en kind gevolgd worden in een observatieruimte met stoelen en wat speelgoed. Moeder en kind nemen plaats in de ruimte. Na een aantal minuten komt een vreemde de ruimte binnen, even daarna verlaat de moeder de ruimte voor korte tijd (het kind is alleen met de vreemde) en komt weer terug. Vervolgens verlaat de vreemde de ruimte, kort daarna gevolgd door de moeder, zodat het kind alleen is. De vreemde komt terug, probeert het kind te troosten, en dan komt ook de moeder weer terug. Door goed op te letten hoe het kind reageert tijdens de afwezigheid van de moeder, maar vooral tijdens de herenigingsepisoden, kan het gehechtheidstype van het kind geclassificeerd worden. In eerste instantie werden drie typen gehechtheid onderscheiden:

een **veilige gehechtheid** (B) – het kind laat zich bij terugkeer van de moeder door haar troosten en gaat redelijk snel weer over tot spelen en ontdekken (*exploratory behavior*);

een **onveilig-vermijdende gehechtheid** (A) – het kind negeert en ontwijkt de moeder als ze terugkomt, lijkt door te gaan met spelen, maar houdt de moeder vanuit de ooghoeken in de gaten;

een **onveilig-ambivalente gehechtheid** (C) – het kind laat zich bij terugkeer van de moeder moeilijk door haar troosten, duwt haar weg en laat haar vervolgens weer niet los. Het kind keert niet of nauwelijks terug naar spelen en ontdekken.

Veel later is door Main en Solomon (1990) een vierde categorie toegevoegd, de D-categorie voor gedesorganiseerde gehechtheid. Dit type gehechtheid komt voort uit angst voor (bepaald gedrag van) de gehechtheidsfiguur, terwijl het kind tegelijkertijd op deze persoon is aangewezen voor bescherming.

Gehechtheid kan ook bij volwassenen gemeten worden. Hiervoor wordt het Gehechtheidsbiografisch Interview (*Adult Attachment Interview*) gebruikt, dat ontworpen is door Main in de jaren tachtig (Main, Kaplan & Cassidy, 1985). De gehechtheidsrelatie wordt hier niet afgeleid uit wat er feitelijk gebeurd is, maar uit de manier waarop de volwassene praat over zijn of haar jeugdervaringen.

DE GESCHIEDENIS VAN DE VREEMDE SITUATIE PROCEDURE

Toen de eerste resultaten van het gebruik van de VSP werden gepubliceerd in 1969 leek het te gaan om een totaal nieuw en uniek instrument. Nader onderzoek wijst echter uit dat er al decennia lang soortgelijke experimenten werden gedaan. Als onderdeel van de eerdergenoemde interesse in de ontwikkeling van kinderen in het begin van de 20ste eeuw, aangevoerd door onder andere de *mental hygiene movement*, begon men te experimenteren met de reacties van kinderen op angst, en probeerde men te achterhalen hoe ze met die angst omgingen. Kinderen werden bijvoorbeeld alleen in een kamer gezet, waarna ze bang werden gemaakt met een donderend geluid (Hagman, 1932), of er werd gekeken hoe kinderen omgingen met een situatie waarin ze zonder hun moeder een aantal testjes moesten ondergaan (Bayley, 1932).

Wiehe (1933) was de eerste die een kind alleen of met de moeder in een kamer bestudeerde terwijl er een vreemde persoon bij kwam. Hij bezigde als eerste de termen *secure* en *insecure* in dit verband. Na hem werden deze termen echter te pas en te onpas gebruikt, en in 1941 riepen Prichard en Ojemann om verduidelijking van de termen *security* en *insecurity* en om een uniforme manier om deze te meten. In 1941 en 1942 deden Shirley en Poyntz een aantal onderzoeken waarbij ze dezelfde vragen stelden als

Ainsworth later in de VSP zou doen: "Hoe groeten de kinderen hun moeder na afwezigheid? Wat zegt dit over de moeder-kind relatie?" Shirley was ook de eerste die de term *Vreemde Situatie* gebruikte.

De eerste die een vreemde situatie echt als diagnostisch instrument gebruikte was Arsenian (1943). Zij voerde een laboratoriumexperiment uit waarbij de effecten van de vreemde situatie, soms met moeder, soms zonder, op het kind werden gemeten. Zij vertaalde de reactie van de kinderen in een mate van *security*. In de jaren '40 en '50 werd slechts één *vreemde situatie* studie uitgevoerd, door Heathers in 1954. Heathers deed een uitgebreidere versie van Shirley's studie uit 1941. Zijn belangrijkste conclusie was dat een experiment op zich niet genoeg kon zeggen over de *security* van kinderen en dat meer uitgebreide thuisobservaties nodig waren om de resultaten van de test te verklaren (iets wat Ainsworth in de Baltimore studie ook zou doen). In de jaren '60 vonden meerdere *vreemde situatie* studies plaats, waarvan een aantal grote gelijkenis vertoonde met de VSP zoals we die nu kennen. Studies als die van Berg, Stark en Jameson (1966), Tennes en Lampl (1966), Rosenthal (1967a, 1967b), Cox en Campbell (1968), Schwarz (1968) en Rheingold (1969) maakten allemaal gebruik van een onbekende ruimte met speelgoed, varieerden de aan- en afwezigheid van de moeder en introduceerden een onbekende persoon of lieten iets angstaanjagends gebeuren. Enkele onderzoekers gingen wat verder dan andere in het uitlokken van een reactie bij het kind - zo liet Rosenthal gegil en gehuil vanachter een rode deur horen, en liet vervolgens een hand, gehuld in zwarte handschoen, langzaam vanachter de deur verschijnen, een olielamp uitdoen en weer verdwijnen, waarna er het geluid van een angstig huilend kind kon worden gehoord. Schwarz joeg kinderen de stuipen op het lijf door plotseling een op afstand bestuurbare mechanische speelgoedgorilla uit een doos te laten lopen.

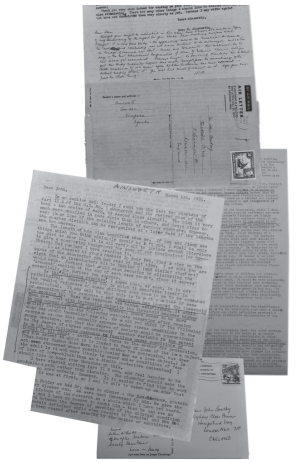
Veel van deze onderzoekers uit de jaren '60 gaven aan geïnspireerd te zijn geraakt door de studies van Arsenian (1943) en Harlow (1958). De laatste had met zijn onderzoek naar het gedrag van resusaapjes aangetoond dat de aapjes, die in een hok waren geplaatst met een kunstmoeder van warme badstof én een kunstmoeder van ijzerdraad met een voedingsfles, een sterke voorkeur hadden voor de zachte badstofmoeder, ook al gaf deze geen voeding; de apen brachten het grootste deel van de tijd bij de badstofmoeder door en klommen alleen kortstondig de kille ijzerdraadmoeder in om even te drinken. In een vervolgonderzoek liet Harlow zien dat de aapjes veel makkelijker een vreemde situatie verkenden als de badstof kunstmoeder in de ruimte stond, dan wanneer de aapjes alleen in een vreemde ruimte waren. De aapjes gebruikten de kunstmoeder als veilige basis.

Ainsworth voerde haar eerste VSPs uit in 1963 als onderdeel van de Baltimore studie. De VSP bevat veel van wat Ainsworth had geleerd bij Blatz (belang van explorerend gedrag, gebruik van de moeder als veilige basis) en bij Bowlby (scheidingservaring gebruiken om gehechtheidsgedrag op te roepen, gedrag bij terugkeer

bestuderen). Ainsworth presenteerde haar eerste bevindingen tijdens een Tavistock meeting in Londen met Bowlby en anderen in 1965. De eerste publicatie is van 1969. Hoewel er vele andere *vreemde situatie* studies zijn gedaan tussen 1930 en 1970, is alleen Ainsworth's VSP overgebleven en wordt het instrument nog steeds veelvuldig gebruikt. Verschillende factoren kunnen dit verklaren. Ten eerste was de VSP gebaseerd op twee theorieën die decennia nodig hadden gehad om zich te ontwikkelen: de *security theory* en de gehechtheidstheorie. De laatste kon het geobserveerde gedrag bovendien verklaren vanuit evolutionair en ethologisch standpunt. Ten tweede vestigde Ainsworth's VSP de aandacht op de ouder-kind relatie. In plaats van de reactie van het kind toe te schrijven aan de aanwezigheid van een onbekende persoon of een vreemde of angstaanjagende omgeving, zag Ainsworth de reactie van het kind als het resultaat van de veilige of onveilige relatie met zijn of haar ouder. Ten derde was de VSP niet een experiment dat wat over gemiddelden zei, maar gaf het informatie over ontwikkelingsverschillen tussen individuele kinderen. De VSP maakte een directe classificatie mogelijk van de gehechtheidsrelatie van het kind met de ouder, waardoor het mogelijk werd om problemen in een vroeg stadium op te sporen. De VSP maakte het mogelijk om in een laboratorium, op simpele wijze, binnen 20 minuten de kwaliteit van de gehechtheidsrelatie tussen kind en ouder te classificeren.

CONCLUSIE

Dit proefschrift laat zien dat Ainsworth's bijdrage aan de gehechtheidstheorie omvangrijker is dan algemeen wordt aangenomen. De ervaring en theoretische kennis die zij opdeed gedurende twintig jaar studie en werk in Toronto met Blatz zijn duidelijk terug te vinden in de gehechtheidstheorie zoals wij die nu kennen, en ook de ontwikkeling van instrumenten als de Vreemde Situatie Procedure (met als uitkomst de verschillende gehechtheidscategorieën) en de sensitiviteitsschalen staan niet op zich, maar zijn een logisch gevolg van Ainsworth's ruime ervaring met het ontwerpen van instrumenten om security te meten. En hoewel de *security theory* van Blatz vandaag de dag nauwelijks nog genoemd wordt, zien we veel aspecten van deze theorie terug in de gehechtheidstheorie. We kunnen daarom stellen dat Bowlby, Ainsworth, en indirect Blatz, alle drie op belangrijke wijze hebben bijgedragen aan de gehechtheidstheorie.



Acknowledgements

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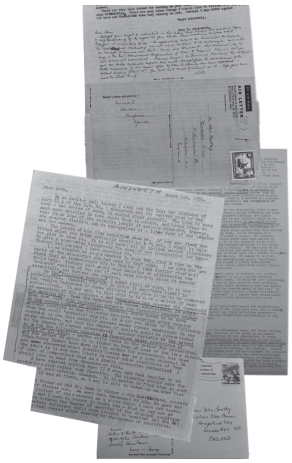
I received much very welcome encouragement from my family and friends, which made it all seem even more worthwhile. Thank you.

Last but not least I thank Spongebob for entertaining my children while I was working all hours... Eddy, Austine and Beaudine, thanks for your patience. Turn off the telly now, I'm back.



Curriculum Vitae

Lenny van Rosmalen werd geboren op 13 januari 1965 te Den Haag, maar verhuisde op vierjarige leeftijd naar Oss. Daar bezocht ze het Maasland College alwaar zij haar Atheneum diploma behaalde in 1983. Datzelfde jaar verhuisde Lenny naar Londen waar zij een vierjarige avondopleiding tot mode-ontwerpster aan het Westminster College volgde. Overdag was zij werkzaam als grafisch specialiste voor een organisatie-adviesbureau, Arthur D. Little. In 1992 verliet zij Londen om anderhalf jaar te reizen door Zuid Amerika, Afrika en Azië. In 1994 vestigde Lenny zich weer in Nederland en werkte daar opnieuw als grafisch specialiste voor Arthur D. Little, dit maal in Rotterdam. In de avonduren volgde zij de opleiding journalistieke-, documentaire- en portretfotografie aan de Fotoacademie in Amsterdam. Toen Lenny, na de geboorte van haar zoon, in verwarring werd gebracht door de grote hoeveelheid tegenstrijdig opvoedingsadvies die ouders tot hun beschikking hebben, besloot zij de opleiding Pedagogische Wetenschappen te volgen aan de Universiteit Leiden, en behaalde in 2003 haar doctoraal (cum laude) met de afstudeerrichting Gezinspedagogiek. Haar doctoraalscriptie over het moreel redeneren van delinquente jongeren leidde tot een publicatie. Inmiddels had Lenny Arthur D. Little in 2002 verlaten en was les gaan geven in de Nederlandse en Engelse taal op het Overbosch College, een VMBO-school in Den Haag. In 2007 werd zij onderwijsmedewerkster en vervolgens docente bij de afdeling Algemene en Gezinspedagogiek van de Universiteit Leiden. In 2011 begon Lenny haar promotietraject waarvan de resultaten voor u liggen.

Lenny van Rosmalen was born on 13 January 1965 in The Hague, The Netherlands, but at the age of four she moved to Oss where she grew up and passed her A-levels at Maasland College in 1983. That same year Lenny moved to London and started studying Fashion Design at Westminster College, while simultaneously holding a position as graphics specialist at a business consultancy firm, Arthur D. Little. In 1992 Lenny left London to travel extensively in South America, Afrika and Asia. In 1994 she moved back to The Netherlands and worked for Arthur D. Little in Rotterdam, again as graphics specialist. In the evenings she studied photography at the Fotoacademie in Amsterdam. After the birth of her son, Lenny was confused by all the contradictory parenting advice she encountered while trying to find the best way to raise him, and she decided to study child raising at the Institute for Child and Family Studies at Leiden University. She graduated in 2003 (cum laude) and her graduate thesis regarding the moral reasoning of juvenile delinquents was subsequently published. In the meantime, Lenny had left Arthur D. Little in 2002 to start teaching English and Dutch at Overbosch College, a secondary school in The Hague. In 2007 she started working at Leiden University, first as teaching assistent, and soon after as lecturer. In 2011 Lenny began working on her dissertation, the results of which are described in this thesis.