Chapter 1 | Introduction

From expecting to experiencing

The role of parenting self-efficacy in the transition to parenthood

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Introduction
From expecting to experiencing
People differ in the confidence regarding their capabilities to parent. This confidence is also termed parenting self-efficacy, which can be defined as “the expectations caregivers hold about their ability to parent successfully” (Jones & Prinz, 2005, p. 342). For some people, their low parenting self-efficacy may delay their decision to become parents (Bruning & McMahon, 2009), but among people who do become parents, considerable individual differences exist as well. Currently, not much is known about the causes of these differences in parenting self-efficacy and about the interplay between changes in parenting self-efficacy and the transition to parenthood. Also, the contribution that parenting self-efficacy as a concept may have to explain individual differences in infant-mother relationships still remains unclear. This dissertation aims to address these issues.

Parenting self-efficacy: level and strength

Parenting self-efficacy is a specific form of self-efficacy, a broader construct defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Earlier studies have shown that higher parenting self-efficacy is associated with more favorable outcomes (for reviews of the literature, see Coleman & Karraker, 1998; Jones & Prinz, 2005). For example, higher parenting self-efficacy was associated with more positive maternal interactive behavior with infants (Bohlin & Hagekull, 1987), maternal perseverance in dealing with a temperamentally difficult infant (Teti & Gelfand, 1991), and positive child adjustment (Ardelt & Eccles, 2001). Studies also demonstrated that children of parents with higher parenting self-efficacy had higher academic and social competence (Bogenschneider, Small, & Tsay, 1997) and less parent-reported behavioral problems (Hill & Bush, 2001) than children of parents with lower parenting self-efficacy. However, high parenting self-efficacy may not always be positive. A study measuring the effects of parenting self-efficacy on maternal behavioral competence during unstructured play showed that the association between parenting self-efficacy and maternal behavioral competence was moderated by knowledge of infant development: mothers with high self-efficacy and high knowledge demonstrated the highest levels of behavioral competence, whereas mothers with high self-efficacy and low knowledge of development showed the lowest levels of behavioral competence (Hess, Teti, & Hussey-Gardner, 2004). The authors suggested the existence of a group of “naively confident” mothers (Hess et al., 2004, p. 434), who may be at risk for parenting difficulties. A series of experimental studies performed by Donovan and Leavitt (1989; 2007; 2005) indeed showed that a group of mothers with a high illusion of control, which closely resembled the naively confident mothers identified by Hess and colleagues (2004), experienced more depressive mood, and displayed a more depressed attribution style, less sensitive behaviors towards their children, and had a higher chance of developing an insecure infant-mother attachment relationship than mothers with a low or intermediate level of illusion of control. Level of parenting self-efficacy reported by mothers might thus not always tell the whole story when investigating the role of parenting self-efficacy in the transition to parenthood.
According to Bandura (1977, 1997) self-efficacy is a multidimensional construct, with efficacy expectations not only differing in level, but also in strength. Most research focused on the level of parenting self-efficacy, because this is what is readily measured using questionnaires. However, strength of parenting self-efficacy might be more important than level in the transition to parenthood, because parenting is a whole new experience and efficacy expectations might be more prone to change in this transitional period (Bandura, 1997). Furthermore, strength of self-efficacy has been associated with perseverance in succeeding at tasks (Bandura, 1977), which is important in parenting, because giving in to the conclusion that the challenges of parenthood may be insurmountable may have detrimental effects for children. Parenting self-efficacy is supposed to derive from several sources, most important of which are personal mastery experiences (Bandura, 1977). Other sources of self-efficacy are verbal persuasion, vicarious experiences, and emotional reactivity (Bandura, 1977). Personal mastery experiences also cause the strongest expectations of self-efficacy, meaning that expectations based on personal mastery experiences are more stable once established than expectations based on other sources. Although these same sources have also been suggested as sources of self-efficacy in the parenting domain (de Montigny & Lacharite, 2005; Leahy-Warren & McCarthy, 2011), evidence regarding emotional reactivity as a source of parenting self-efficacy is based solely on parental reports of stress (Reece & Harkless, 1998) and not on physiological arousal. Studying the role of physiological arousal as a source of parenting self-efficacy might thus yield new insights on the relative importance of this source.

During first-time pregnancy, personal mastery experiences in parenting a child are still relatively limited. Some women may have had some experience in taking care of other people’s infants, but such experiences may be qualitatively different from the continuous involvement and responsibility parents may feel with their own children. Expectations of parenting self-efficacy might thus be less strong and more prone to fluctuation in parents-to-be than in people with children of their own. Examining strength of parenting self-efficacy cannot be done properly by the use of questionnaires at a single point in time, because questions on how stable or unstable efficacy expectations would be in response to challenging situations would be too complex for people to answer in a reliable and truthful manner. The study of strength of parenting self-efficacy can be even further improved by taking experimental control over experiences between assessments of parenting self-efficacy, so that changes in parenting self-efficacy can be studied as a function of individual characteristics, perception and processing rather than a function of the experiences that people are exposed to. When strength of parenting self-efficacy and its correlates are better understood, the concept of strength may be used for understanding how some parents deal with the challenges of parenthood better than others.
Parenting self-efficacy and challenges in parenthood

Challenges in parenthood are different for every person, both before and after birth. Challenges may differ partly as a function of what the infant brings to the relationship. Some infants are perceived to cry a lot, to send diffuse signals, or to be difficult to calm down, whereas other infants are perceived as more readable in their affective signals and therefore more easy to satisfy. Parents’ ideas about their effectiveness as a parent may therefore be linked to their perception of their children’s temperament. Temperament is defined as “constitutionally based individual differences in reactivity and regulation” (Rothbart, 1986, p. 356) and consists of multiple dimensions, of which some reflect positive reactivity, such as smiling as laughter, and some reflect negative reactivity, such as distress to limitations or novel stimuli and unsoothable crying. Although the definition of temperament focuses mostly on the biological endowment that infants have, temperament is most often measured by questionnaires filled out by the infant’s parents. Parental ratings of infant temperament might thus be reflective of characteristics that are attributed to infants by their parents, and these attributions might partly depend on parental psychological processes and partly on their infants’ biological endowment. Temperamental characteristics, perceived and biologically determined, differ greatly between infants in the first year after birth (Rothbart, 1986), which may have consequences for adaptation to parenthood. Studies on the linkages between infant temperament and adaptation of parenthood usually focus on existing variation in temperament between children. A disadvantage of this approach is that, unless such studies start right from the moment of birth, cognitions regarding parenthood and experienced infant temperament become increasingly intertwined, thus making it difficult to determine the direction of the associations between aspects of parenting and (perceptions of) temperament. Furthermore, every parent is only confronted with their own child’s temperament, attenuating the contribution of precursors in parents to the adaptation process. In order to study underlying processes of parenting and changes in the adaptation to parenthood without these disadvantages, an experimental challenging caregiving situation in which every individual was confronted with the same parenting experiences, assessed prior to birth, was employed. The use of an experimental paradigm enables the study of the interplay between different sources of parenting self-efficacy. By manipulating the amount of success and failure experiences, both objective success and failure experiences and moderating factors such as how these success and failure experiences are perceived can be examined as predictors of change in parenting self-efficacy. Studying the effects of physiological arousal during caregiving challenges is also more feasible in an experimental situation than in real caregiving situations, because it has the advantage that all participants are confronted with the same challenges, enabling between-subjects comparison in reactivity. Chapter 2 reports on a study that examined the role of success and failure experiences, autonomic nervous system reactivity and cry perception as predictors of strength of parenting self-efficacy during this simulated challenging caregiving situation.

To investigate whether differences in strength of parenting self-efficacy after challenges during the experimental caregiving situation hold predictive value for the impact of real parenting
experiences after birth, chapter 3 describes a study that investigated whether mothers who were more susceptible to temperamental differences during the experimental task in pregnancy also showed stronger linkages between infant negative reactivity and parenting self-efficacy in the transition to parenthood. While the ability to update expectations according to new experiences might be adaptive for parents in some situations, in other situations this might be a risk factor for escalating negative perceptions of the self and the infant and thus an indication for being at risk for unsuccessful adaptation to parenthood. Identifying such an effect would also be beneficial for more targeted preventive and supportive practice, especially prior to birth.

As previously stated, individual differences in infant temperament may cause varying parenting experiences. Studies have shown that parenting self-efficacy on average increases in the transition to parenthood (Hudson, Elek, & Fleck, 2001; Porter & Hsu, 2003), but this increase was less for parents reporting more negative temperament of their infants (Porter & Hsu, 2003). Negative temperamental characteristics have often been associated with lower parenting self-efficacy (Cutrona & Troutman, 1986; Gross, Conrad, Fogg, & Wothke, 1994; Leerkes & Crockenberg, 2002; Lipscomb et al., 2011; Porter & Hsu, 2003; Teti & Gelfand, 1991). Although many studies have been conducted on the association between temperamental characteristics of the infant and parenting self-efficacy, the direction of this association has not been studied. Most studies have assumed that parents with children who displayed more negative reactivity are more often confronted with a dissatisfied infant than parents of children displaying less negative reactivity. This dissatisfaction of the infant might be interpreted as a signal that the parent may have failed to deliver the proper caregiving response, which would lead, based on Bandura’s (1977) theory, to lower self-efficacy in the domain of parenting. However, another possibility for the direction of an association between parenting self-efficacy and perceived temperament is that lower parenting self-efficacy, which is also a predictor for lower parenting competence (for a review, see Jones & Prinz, 2005), may cause more mismatches between infant signals and parental responses. This might lead to more (perceived) infant dissatisfaction. Furthermore, parents might rate their infants’ temperament relative to the difficulty they may experience in soothing and calming their infant, which could be why waning initial or ‘naive’ confidence (i.e., a correction to possible too high initial parenting self-efficacy) might lead to adaptations to their perceptions of infants’ temperament. Knowledge on the direction of the association between parenting self-efficacy and infant negative temperamental characteristics would not only yield more insight in the underlying mechanisms in the adaptation to parenthood, but would also provide knowledge for parents and their support systems to overcome the difficulties that every parent faces at times. Chapter 4 reports on a study that investigated the directionality of the longitudinal association between infant negative temperamental characteristics and parenting self-efficacy in the transition to parenthood.
Parenting self-efficacy and attachment

While it is important to attempt to understand the construct of parenting self-efficacy in the mind of the parents, another type of questions regard the effects of parenting self-efficacy on infants. During a period when mothers adapt to parenthood, infants develop an attachment relationship and organize their attachment system in adaptation to their mothers’ behaviors (Bowlby, 1969/1982).

A secure infant-mother attachment relationship is characterized by the infant seeking and finding reassurance from the mother in times of distress. Pioneering observation studies by Ainsworth and colleagues (Ainsworth, Blehar, Waters, & Wall, 1978) showed that not all children sought in the same way comforting from their primary caregiver in times of distress. Distinct behavioral strategies were applied, which were categorized into attachment patterns. In addition to the secure infant-mother attachment relationship, two insecure attachment patterns were identified: avoidant and resistant. Infants classified as having an avoidant attachment relationship with their mothers tended to display few signals of distress and turned away from their mothers in stressful times. Infants with a resistant attachment classification on the other hand, were characterized by vigilance about their mothers whereabouts, distressed and angry reactions when contact with mothers was interrupted, and difficult soothing after contact had been resumed. A ground-breaking study by Main, Kaplan and Cassidy (1985) showed that the type of infant-mother attachment relationship could be predicted by the way their parents talked about their own childhood experiences with their parents, consistent with the proposal that adults may carry forward in their development a mental representation of their attachment experiences, as suggested by Bowlby (1969/1982). The findings of Main and her colleagues (1985) caused a broadening of focus of attachment research from the study of attachment behaviors to assessment of mental representations and internal working models, later also called “attachment state of mind”. The intergenerational link between maternal attachment state of mind and the infant-mother attachment relationship in the majority of the infant-mother dyads has been confirmed often in later studies (for an overview, see Van IJzendoorn, 1995). Even studies measuring maternal state of mind prior to birth showed this correspondence of infant-mother attachment relationships with maternal states of mind (Benoit & Parker, 1994; Fonagy, Steele, & Steele, 1991; Ward & Carlson, 1995). Infants with secure infant-mother attachment relationships were significantly more often than infants with insecure attachment classifications linked to mothers with an autonomous attachment state of mind, who tend to display coherent narratives regarding attachment experiences, thoughtful reflections on past experiences and valuing statements of attachment relationships. For non-autonomous states of mind, two different discourse patterns were identified: dismissing and preoccupied. Infants with avoidant infant-mother attachment relationships significantly more often had mothers with dismissing attachment states of mind, which is ascribed to adults who set aside the importance of attachment relationships for personality development and tend to idealize their childhood
experiences or claim to have few memories of that period. Resistant infant-mother attachment was associated with a preoccupied maternal state of mind, which is characterized by confused or angry discourse and preoccupation with previous or ongoing attachment-related experiences. Maternal state of mind is based on the attachment experiences adults had with their own parents during childhood, although the persons own processing of these experiences as well as input from later attachment-related experiences may also play a role, such as in romantic relationships, therapy, or life events. In addition, it might be possible that these experiences with own parents in which the attachment state of mind is rooted serve also as a source of information for parenting self-efficacy, as suggested by Roisman and colleagues (2004), who proposed a link between the emotional integration of early experiences and adaptational domains of parenting. Especially in first-time parents with limited parenting experiences of their own, these same experiences might be among the few that can serve as personal experiences with parenting, albeit on the other side of the parent-child dyad. Besides these experiences during childhood, new experiences regarding parenthood, such as parenting experiences after birth, verbal persuasion by others, modeling by friends with children and emotional arousal, are constantly incorporated in people’s efficacy expectations. However, these additional influences on parenting self-efficacy might also be influenced by a persons’ attachment state of mind. Because the concepts of parenting self-efficacy and attachment state of mind might thus be intertwined, studying the interplay between maternal attachment state of mind and parenting self-efficacy in the development of the infant-mother attachment relationship might yield new insights regarding the intergenerational transmission of attachment and factors involved in the development of the infant-mother attachment relationship.

The link between attachment state of mind and parenting self-efficacy has not been studied before, but a negative association was found between anxious and avoidant maternal attachment styles and parenting self-efficacy during the first year after birth in a clinical sample (Kohlhoff & Barnett, 2013). Another study showed that women reporting higher parenting self-efficacy felt more attached to their infants (assessed with a questionnaire on feelings of closeness) than women with lower parenting self-efficacy (Williams et al., 1987). Parenting self-efficacy has also been linked to infant-mother attachment. Donovan and Leavitt (1989) found that women with high illusion of control, similar to naive high self-efficacy, less often developed a secure attachment relationship with their infants than mothers with low or moderate illusion of control. These results support the idea that parenting self-efficacy in the transition to parenthood may be predictive of infant-mother attachment as well. Chapter 5 of this dissertation describes a study that investigated whether the quality of the infant-mother attachment relationship could be explained by parenting self-efficacy and other psychosocial variables during the transition to parenthood in addition to maternal state of mind regarding attachment.
Research design

The studies described in this dissertation have taken place within the setting of the Generations² study, a large-scale prospective cohort study following first-time pregnant women during the transition to parenthood. By following women from the first trimester of pregnancy until one year after birth, the study aims to shed light on the process of the adaptation to parenthood and the difficulties some new parents may encounter. Starting measurements before birth enables us to draw conclusions on the directionality of associations as well, because this excludes the possibility of moderation of these associations by child variables.

The large-scale study

The Generations² study follows a longitudinal design, with women filling out questionnaires about their well-being at several time points during their pregnancy and in the first year after birth. The study timeline can be found in Figure 1. Recruitment of participants took place via midwifery practices in the Amsterdam area and via the research website. Women were eligible to participate if they were pregnant with their first child, and if their proficiency of the Dutch language was good enough to understand the questionnaires. Women were asked to fill out questionnaires from the first trimester of pregnancy until one year after birth in the initial informed consent. After giving consent, women received the first package of questionnaires by mail at approximately 12 weeks of pregnancy. This package contained the prenatal version of the Maternal Self-Efficacy in the Nurturing Role Questionnaire (SENR; Pedersen, Bryan, Huffman, & Del Carmen, 1989), the Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996; Van der Does, 2002), the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), the Pregnancy Related Anxiety Questionnaire (PRAQ; Huizink, Mulder, de Medina, Visser, & Buitelaar, 2004) and a questionnaire regarding demographic data. After filling out the questionnaires, participants sent the questionnaires back to the research facility.

At 22 and 32 weeks of pregnancy, women received the second and third questionnaire packages, holding the same questionnaires as the first package, except for the demographic questionnaire. In the 32 weeks questionnaire package, an extra questionnaire regarding plans for delivery and breastfeeding was included and an extra envelope was provided with these questionnaires, so that women could send us their birth announcement after the birth of their infant. When birth announcements were not received, women were called around one month after their due date to confirm whether their baby was born and to note the date of birth.

At three months after birth, the fourth round of questionnaires was sent to the mothers, with the addition of the Parenting Stress Index (PSI; Abidin, 1983; de Brock, Vermulst, Gerris, & Abidin, 1992), the Infant Behavior Questionnaire (IBQ; Rothbart, 1981) and a questionnaire on delivery experiences and breastfeeding. The PRAQ was excluded from the postnatal packages.
the large-scale study received a final package of questionnaires at 12 months after birth, holding the same questionnaires as the package at 3 months, except for the questionnaire on delivery and breastfeeding.

<table>
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<th>Large-scale study</th>
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<td>General anxiety</td>
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<td>Demographic questionnaire</td>
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<td>12 wks</td>
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<td>Maternal state of mind</td>
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<td>Strength of parenting self-efficacy</td>
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<td>Extensive study</td>
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<td>Parenting self-efficacy</td>
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<td>Depression</td>
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<td>General anxiety</td>
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<td>Infant temperament</td>
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<td>Parenting stress</td>
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<td>Delivery and breastfeeding</td>
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*Figure 1. Study timeline*

*Note.* Measurements in bold font are used in the current dissertation.

More detailed information about the measures, the procedure and the participants of the large-scale study can be found in chapter 4.

**The extensive study**

For the inclusion of a more extensively studied subsample, participants of the large study were approached at 18 weeks of pregnancy to take part in three additional, more intensive measurements if they lived within travel distance of the research facility, if they were fluent in the Dutch language, and if they did not receive a prenatal diagnosis of a congenital abnormality of the fetus based on the ultrasounds given at 12 and 20 weeks of pregnancy. Roughly 50% ($N = 181$) of the approached women agreed to participate in the more intensive study.

At approximately 22 weeks of pregnancy, the first of the intensive measurements took place, a home visit during which state of mind with respect to attachment was assessed with the Adult Attachment Interview (George, Kaplan, & Main, 1984, 1985, 1996). The interview was transcribed verbatim afterwards and coded by two coders who were certified on the Main and Goldwyn coding system (1994). After the interview, women participated in the Cry Response Task, a computerized challenging caregiving experiment during which women tried to soothe simulated crying infants. Soothability of the infants was manipulated to simulate an easy and a difficult to soothe infant. Women received feedback on their soothing success. The experiment was designed to study the malleability of parenting self-efficacy in response to changes in soothability, perceptions of
the infants and autonomous nervous system reactivity. A more detailed description of the Cry Response Task can be found in chapter 2. During the entire home visit, women were connected to an ambulatory monitoring device for continuous measurement of autonomic nervous system response indicators (VU-AMS; De Geus, Willemsen, Klaver, & Van Doornen, 1995; Willemsen, De Geus, Klaver, Van Doornen, & Carroll, 1996).

At approximately 10 months after birth, the second of the extensive measurements took place, which was a home visit consisting of two parts. The first part existed of three tasks from the Laboratory Temperament Assessment Battery (Lab-TAB; Goldsmith & Rothbart, 1999) to assess observed infant temperament. For the second part, mothers were instructed to play with their children as they normally would without the use of any toys during a period of 15 minutes. This procedure served to measure maternal sensitivity during play and was scored with the short version of the Maternal Behavior Q-Sort (Mini-MBQS-V; Pederson & Moran, 1995; Tarabulsy et al., 2009). Both parts of the home visit were videotaped and scores afterwards by different coders, who completed a reliability set on each measure.

At approximately 12 months after birth, the last of the extensive measurements took place, for which mother-infant dyads visited the laboratory in order to participate in the Strange Situation Procedure to assess the quality of the infant-mother attachment relationship (Ainsworth et al., 1978). Videos were scored afterwards using the Strange Situation coding system (Ainsworth et al., 1978; Main & Solomon, 1990). At the end of the laboratory visit, women were rewarded with a 60 Euros gift certificate and their infants received a little present.

Table 1. Overview of measures per chapter

<table>
<thead>
<tr>
<th>Measures</th>
<th>Chapter 2 (N = 151)</th>
<th>Chapter 3 (N = 180)</th>
<th>Chapter 4 (N = 616)</th>
<th>Chapter 5 (N = 140)</th>
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<td>Cry Response Task</td>
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<td>Adult Attachment Interview</td>
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<td>Physiological measurements</td>
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<td>Questionnaires 12 months</td>
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<td>Strange Situation Procedure</td>
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More detailed information about the measures, the procedure and the participants of the extensive study can be found in chapter 2, 3, and 5. Sample sizes for chapter 2, 3, and 5 vary between N = 180 and N = 140 due to mechanical failures and attrition. Table 1 presents an overview of the measures used in each chapter. Because the chapters 2, 3, 4, and 5 can be read as separate articles, some overlap in the description of the studies could not be avoided.
References


Porter, C. L., & Hsu, H. C. (2003). First-time mothers’ perceptions of efficacy during the transition to motherhood: Links to infant temperament. *Journal of Family Psychology, 17*(1), 54-64. doi: 10.1037/0893-3200.17.1.54


