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# PUPILS´ ACHIEVEMENT STRATEGIES, FAMILY BACKGROUND AND SCHOOL PERFORMANCE

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**ONATSU-ARVILOMMI, TIINA.** OPPILAIDEN SUORITUSSTRATEGIAT, PERHETAUSTA JA KOULUMENESTYS

## TIIVISTELMÄ

Koulusuoriutumista ja oppimisvaikeuksia tarkasteltiin kognitiivis-motivationaalisesta näkökulmasta, jossa oppimista kuvataan dynaamisena itsesäätelyprosessina ajattelu- ja toimintastrategioiden käsittein. Ajattelu- ja toimintastrategia -viitekehyksen puitteissa ajatellaan, että yksilön sisäiset teoriat suuntaavat häntä kohti erilaisia tavoitteita, jotka puolestaan orientoivat häntä erilaiseen tarkoituksenmukaiseen tai epätarkoituksen-mukaiseen toimintaan (Dweck, 1990). Tutkimusten tarkoituksena oli tarkastella suoritusstrategioiden, perhetaustan ja koulusuoriutumisen välisiä yhteyksiä. Väitöskirjaan sisältyy kolme alisuoriutuvia ja heikosti menestyviä nuoria koskevaa tutkimusta sekä yksi ala-asteen 1. luokan oppilailla tehty ristiviiveinen seurantatutkimus. Tulokset osoittivat ensinnäkin, että alisuoriutuvat ja heikosti koulussa menestyvät nuoret käyttivät epätarkoituksenmukaista, tehtävää välttelevää strategiaa, jota on aikaisemmassa kirjallisuudessa kuvattu nk. itseä vahingoittavana strategiana (Jones & Berglas, 1978). Sen piirteisiin kuuluvat alhainen itsetunto ja motivaatiotaso sekä runsas epäonnistumisen ennakointi ja tehtävään liittymätön toiminta suoritustilanteissa. Toiseksi alkuperäisen perheen rikkoutumisen, yksinhuoltajuuden sekä negatiivisen ja ristiriitaisen perheilmapiirin havaittiin lisäävän nuorten kouluvaikeuksia ja koulun jälkeisiä ongelmia. Kolmanneksi äitien depressiivisyys ja sen heijastuminen lastenkasvatukseen, sekä isien kasvatukseen liittyvä stressi ja voimattomuudentunteet näyttivät olevan yhteydessä lasten epätarkoituksenmukaisten, tehtävää välttelevien suoritusstrategioiden käyttöön koulussa. Toisaalta äitien psyykkiseen hyvinvointiin liittyvä autoritatiivinen kasvatustyyli ja autoritäärinen kontrolloivuus lisäsivät tarkoituksenmukaisten, tehtäväsuuntautuneiden strategioiden kehittymistä koulussa. Neljänneksi lasten koulussa käyttämät suoritusstrategiat ja akateemiset perustaidot, erityisesti lukeminen, muodostivat kumulatiivisen, joko positiivisen tai negatiivisen kehityksellisen kehän. Yhtäältä epätarkoituksenmukaisia ja tehtävää välttelevviä strategioita käyttävien oppilaiden perustaidot kehittyivät hitaammin kuin tehtäväsuuntautuneita strategioita käyttävien perustaidot. Toisaalta myös heikko perustaitotaso lisäsi epätarkoituksenmukaisten, tehtävää välttelevien strategioiden käyttöä suoritustilanteissa, kun taas hyvä taitotaso johti tehtäväsuuntautuneiden strategioiden käyttöön. Diskussio-osassa pohditaan negatiivisen kumulatiivisen kehän varhaisen katkaisemisen tärkeyttä ennen kuin se johtaa negatiivisiin pitkäaikaisvaikutuksiin. Interventioiden tulisi sisältää kognitiivisesti orientoituneiden tukitoimien lisäksi lasten suoritumususkomusten ja niihin liittyvien suoritusstrategioiden muuttamista niiden minää suojeleva luonne huomioiden. Samoin perheitä tulisi tukea kasvatusongelmien selvittämisessä.

Avainsanat: Alisuoriutuminen, heikko koulumenestys, suoritusstrategiat, itseä vahingoittava strategia, perhetausta, kasvatustyylit, lukeminen, matematiikka, kumulatiivinen kehityksellinen kehä.

**ONATSU-ARVILOMMI, TIINA.** PUPILS´ ACHIEVEMENT STRATEGIES, FAMILY BACKGROUND AND SCHOOL PERFORMANCE

## ABSTRACT

This thesis focused on school achievement and learning difficulties from a cognitive-motivational perspective. Learning is described as a self-regulated dynamic process in which a variety of cognitive and attributional strategies play an important role. It is assumed that individuals´ implicit theories orient them toward different kinds of goals, which then lead to the construction of either adaptive or maladaptive behavioral patterns leading in turn to more or less successful outcomes (Dweck, 1990). The aim of this thesis is to examine the relationships between such achievement strategies, family background and school performance. This is done by using data from four studies, three focusing on underachieving and low-performing adolescents, and one cross-lagged longitudinal study focusing on first graders in primary school. The results showed, first, that the under- and low-achieving adolescents used a maladaptive achievement strategy consisting of a low self-concept, high levels of failure expectation and task-irrelevant behavior, and a low level of motivation, described earlier in the literature as a self-handicapping strategy (Jones & Berglas, 1978). Second, the breakdown of the original family and single parenting, as well as a negative and discordant atmosphere in the family, were found to increase the problems at school and later. Third, mothers´ depressive symptoms, and how they were reflected in their parenting styles, and fathers´ feelings of stress and powerlessness in the context of parenting, were associated with their children´s adoption of maladaptive strategies in the classroom setting. In turn, the mothers´ authoritative parenting, which was associated with their high well-being, and their authoritarian control, were found to be beneficial for the development of adaptive strategies at school. Fourth, the achievement strategies the children deployed at school, and their reading skills in particular, seemed to form a cumulative, either positive or negative, developmental cycle. On the one hand, those who showed a tendency to deploy maladaptive, task-avoidant achievement strategies improved less in their skills than those who turned to task-focused strategies. On the other hand, a low level of these skills increased the subsequent tendency to turn to the use of maladaptive, task-avoidant strategies in an achievement context, whereas good skills led to the use of task-focused strategies. The dissertation concludes with a discussion emphasizing the importance of making an effort to break negative cumulative cycles early on before they lead to a negative, long-term impact on children´s school achievement, and to problem behavior. Such interventions should involve not only cognitively-oriented practices, but also efforts to change children´s achievement-associated beliefs and related strategies. Moreover, the family context should be taken into account by including family counselling to support parents who have problems in parenting.


Key words: Underachievement, low achievement, achievement strategies, self-handicapping, family background, parenting styles, reading, mathematics, cumulative developmental cycle.

## ACKNOWLEDGEMENTS

# CONTENTS

## LIST OF ORIGINAL PUBLICATIONS

This paper is based on the following publications, and together with them constitutes the academic dissertation of the author:

**Study I**
Nurmi, J-E., Onatsu, T., & Haavisto, T. (1995). Underachievers´ cognitive and behavioral strategies - Self-handicapping at school. Contemporary Educational Psychology 20, 188-200.

**Study II**
Onatsu-Arvilommi, T., & Nurmi, J-E. (1997). Family background and problems at school and in society: The role of family composition, emotional atmosphere and parental education. European Journal of Psychology of Education, 12, 315-330.

**Study III**
Onatsu-Arvilommi, T., & Nurmi, J-E. (2000). The role of task-avoidant and task-focused behaviors in the development of reading and mathematical skills during first school year: A cross-lagged longitudinal study. Journal of Educational Psychology, 92, 478-491.

**Study IV**
Onatsu-Arvilommi, T., Nurmi, J-E., & Aunola, K. (2002). The development of achievement strategies and academic skills during the first year of primary school. Learning and Instruction, 12, 509-527.

**Study V**
Onatsu-Arvilommi, T., Nurmi, J-E., & Aunola, K. (1998). Mothers´ and fathers´ well-being, parenting styles, and their children´s cognitive and behavioural strategies at primary school. European Journal of Psychology of Education, 13, 543-556.

In the text the publications are referred to by their Roman numerals (I-V).

# 1. INTRODUCTION

Education and academic achievement play an important role in modern society, because they direct individuals´ life paths and provide a basis for successful socialization into adulthood in areas such as finding an appropriate occupation, career and standard of living. Problems in achieving a proper education may, in turn, lead to many difficulties, such as unemployment, dropping out of society and even delinquency (Facan & Pabon, 1990; Hartnagel & Krahn, 1989). Not surprisingly, low school performance and learning difficulties have attracted increasing attention in psychology and pedagogics in recent years. Research on learning problems has traditionally focused on deficiencies in specific cognitive abilities and on the neuropsychological basis of learning difficulties (Lerner, 1993; Lyytinen, 1997).

More recently, this cognitive and neuropsychological approach has been complemented by *a cognitive and attributional theory perspective*. On the one hand, it has been suggested that a variety of cognitive-motivational factors, such as achievement strategies, motivational styles and the causal attributions children and adolescents display in the classroom provide a basis for their low achievement and related school problems (Aunola, Nurmi, Niemi, Lerkkanen & Rasku-Puttonen, 2002; Carr, Borkowski & Maxwell, 1991; Jacobsen, Lowery & DuCette, 1986; Zuckerman, Kieffer & Knee, 1998). For example, pupils who are afraid of failure, and who are anxious, passive and helpless, or who play around, are most likely to fail in learning situations. In turn, those who are optimistic and expect to do well, who try hard and concentrate on the task at hand, typically do well. On the other hand, it has been suggested that academic achievement and the feedback pupils receive at school, and how they interpret the causes of their achievement outcomes, provide a basis for the ways in which they deal with new academic challenges (Higgins & Berglas, 1990; Jones & Berglas, 1978; Rhodewalt, 1990).

In the present thesis, problems in school achievement and in the development of basic academic skills are approached from *the process-oriented, cognitive-motivational viewpoint* (Cantor, 1990; Dweck, 1990; Showers & Cantor, 1985). It is assumed that individuals´ implicit theories of themselves and their learning situations orient them toward certain kinds of goals, which then lead to the construction of either adaptive and task-focused or maladaptive and task-avoidant achievement strategies. These then result in more or less successful outcomes, and related positive or negative emotions. Subsequently, the causes of these achievement outcomes are interpreted by the individual in terms of causal attributions (Dweck, 1990). These self-

organizing dynamic processes are defined in this thesis as *cognitive and attributional achievement strategies*.

One concept that has been frequently used to describe problems in education is *underachievement*, often defined as a discrepancy between pupils´ actual academic performance and intelligence. The main idea here is that underachievers´ performance is lower than seems to be warranted by their intelligence (Dowdall & Colangelo, 1982). Although the ability-achievement discrepancy criterion has sometimes been criticized (Meyer, 2000; Stanovich & Stanovich, 1996), it is widely accepted in applications and clinical work (Berninger, Hart, Abbott & Karovsky, 1992; Carr et al., 1991; Dobbins & Tafa, 1991). Another concept that is closely related - even by definition - to problems at school is *low achievement*. Although conceptually close to underachievement, it is defined by social expectancies: the achievement level of a child does not meet the standards set by the school authorities. *The first aim of the present thesis was to examine to what extent under- and low-achieving adolescents apply maladaptive and task-avoidant cognitive and attributional strategies at school compared to normal and high-achieving adolescents.*

Entry into primary school might be assumed to be a critical period for the development of achievement strategies (Aunola, Nurmi, Lerkkanen & Rasku-Puttonen, 2003; Lepola, Salonen & Vauras, 2000). When children start school they are confronted by a continuous set of new challenges and demands, such as acquiring literacy and numeracy, often for the first time in their life. At school they also receive systematic feedback about their success or failure in different achievement tasks. Facing these new learning tasks and the related feedback might be assumed to play an important role in the development of their cognitive and attributional strategies. However, the developmental antecedents and consequences of such strategies at the beginning of formal education have not been sufficiently examined. Consequently, *the second aim of the thesis was to investigate the developmental dynamics of children´s cognitive and attributional achievement strategies and their basic academic skills of reading and mathematics, during the first year of primary school.*

It has also been suggested that the development of pupils´ cognitive and attributional achievement strategies have their roots outside the school, such as in the family. For example, the ways in which parents respond, tutor and control their offspring might be assumed to play an important role in the development of the achievement strategies the children deploy at school (Aunola, Stattin & Nurmi, 2000b; Baumrind, 1991; Hokoda & Fincham, 1995; Nolem-Hoeksema, Wolfson, Mumme & Guskin, 1995). Furthermore, it has been shown that a variety of factors, such as parental

education and related socioeconomic status (Gustafson, 1994; Lee-Corbin & Evans, 1996), maternal and paternal well-being (Hokoda & Fincham, 1995; Nolem-Hoeksema et al., 1995), and family composition (Demo & Acock, 1996; Marjoribanks, 1983), are associated with parenting styles and capacities. *The third aim of the present thesis was to examine the role of a variety of social and psychological family-background variables such as parental education and socioeconomic status, the composition and emotional attmosphere of the family, and maternal and paternal well-being and stress, and their effects on parents´ parenting styles, in the development of children´s cognitive and attributional strategies, their subsequent school performance and adaption to society.*

## 2. ANTECEDENTS OF UNDERACHIEVEMENT AND LOW PERFORMANCE

A number of studies have been carried out on the antecedents of low and underachievement including research on the role of psychological, social and family-background variables.

### 2.1. Psychological and intrapersonal antecedents

**Intelligence and cognitive abilities**

It has been suggested that *intelligence* (Sternberg, 1997) and *general cognitive ability* (Boekaerts, 1991) create an internal milieu for learning and achievement. Many studies have also reported a strong association between intelligence and school achievement (Boekaerts, 1991; Brody, 1997; Maqsud, 1997; Smedler & Torestad, 1996). However, because underachievement (Dowdall & Colangelo, 1982) and learning disabilities (Licht, Kistner, Ozkaragoz, Shapiro & Clausen, 1985) have typically been defined on the basis of a comparison between potential and actual achievement, their origins should, by definition, be elsewhere than in mental abilities and intelligence.

Moreover, it has been suggested that individuals may have *different concepts of their cognitive abilities* (Cain & Dweck, 1989; Dweck & Elliot, 1983), which then also affect the ways in which they approach challenges in the learning context. Some individuals believe that ability is a stable trait, i.e., they conceive of it as an entity. The goal of students who accept this entity concept is to look smart regardless of how much they learn. Effort also has limited potential for them, because they do not

believe that it increases their abilities. Others have an instrumental-incremental concept of ability, according to which it consists of an ever-expanding repertoire of skills and knowledge that is increased through one´s own instrumental behavior (Dweck & Bempechat, 1983). The goal of children who have developed this kind of concept is to become smarter by increasing their skill levels. It could be assumed that low- and underachievers believe in the entity concept of cognitive ability.

**Self-related beliefs**

Perceived competence is also important for individual motivation and academic achievement. It is part of an individual´s *self-systems or self-schemas,* i.e.*,* the affective-cognitive structure of organized and integrated self-knowledge. These kinds of self-systems consist of constructs *such as the general or academic self-concept, self-esteem and self-efficacy beliefs* (Markus, 1977; Rosenberg, 1965). It is the self-knowledge of competence that allows an individual to use his or her abilities instrumentally, and to have a sense of control over them (Markus, Cross & Wurf, 1990).

Self-systems play an important part in individuals´ achievement-related behavior. Even if an individual is actually competent, without a corresponding self-system, i.e. a belief in one´s own competence, he or she has the psychological experience of incompetence (Phillips & Zimmerman, 1990). This is assumed to be the case for low- and underachievers´ academic self-concepts. Because individuals have a fundamental need to see themselves as being competent (see Connell, 1991), they may even avoid learning tasks that maintain the perception of competence, even though such behavior may lead to continuous failing in academic contexts. In our culture, the concept of intellectual competence is claimed to be a fundamental part of the sense of the individual´s self-worth (Covington, 1992; Stipek, 2002).

It has also been shown that an individual´s self-systems are some of the key antecedents of underachievement and low performance (Borkowski, Carr, Rellinger & Pressley 1990; Carr et al., 1991; Oka & Paris, 1987). Low-performing (Aunola, Stattin & Nurmi, 2000a; Butkowski & Willows, 1980; Craske, 1988; Ehrlich, Kurtz-Costes & Loridant, 1993; Leondari, 1993; Skaalvik, 1983), underachieving (Borkowski, Carr & Pressley, 1987; Carr et al., 1991; Kershner, 1990; Oka & Paris, 1987; Van Boxtel & Moenks, 1992) and learning-disabled (Chapman, 1988; Valas, 1999) children and adolescents have been found to have a lower general and academic self-concept than normal or high-achieving pupils. This association has been shown to be based on reciprocal impacts (Kurtz-Costes & Schneider, 1994; Marsh, 1984, 1990; Skaalvik & Hagtvet, 1990). Children who view themselves as incapable of academic success

perform worse than their peers who have a positive academic self-concept (Kurtz-Costes & Schneider, 1994; Marsh, 1984, 1990; Shavelson & Bolus, 1982; Skaalvik & Hagtvet, 1990). In turn, low achievement debilitates children´s subsequent academic self-concept (Kurtz-Costes & Schneider, 1994; Marsh, 1984, 1990; Newman, 1984; Skaalvik & Hagtvet, 1990).

According to the metacognitive-motivational model, underachievement is a consequence of the failure to develop functional self-related beliefs, and corresponding mature and integrated cognitive and metacognitive skills and knowledge. This, then, results in poor performance, and in further reinforcement of negative self-perception and beliefs (Borkowski et al., 1990; Carr et al., 1991; Krouse & Krouse, 1981).

**Mastery and attributional beliefs**

A substantial amount of research has focused on examining the impact of children´s *control beliefs* and *causal attributions of their academic failures and successes* on their academic motivation and achievement (e.g. Butkowski & Willows, 1980; Diener & Dweck, 1978; Rotter, 1966; Weiner, 1985). According to social learning theorists (Rotter, 1966), children who have an external locus of control, i.e., who believe that their failures are caused by factors beyond their control, are more likely to show deterioration of performance when faced with challenging tasks than their peers who believe in the importance of personal effort (Butkowski & Willows, 1980; Carr et al., 1991; Connell, 1985; Dweck & Leggett, 1988; Licht et al., 1985). Studies examining the role of locus of control in learning difficulties have shown that learning-disabled children believe less in the possibility of having personal control at school (Butkowski & Willows, 1980; Jacobsen et al., 1986; Van Boxtel & Moenks, 1992). As a consequence, these children show lower achievement expectation, lower and less intrinsic achievement motivation, less persistence, and more situational anxiety than their age mates (Ellis, 1986; Ford, 1992; Van Boxtel & Moenks, 1992).

Similarly, attribution theorists (Kelley, 1972; Weiner, 1979) have shown that low- and underachieving pupils more frequently apply internal attributions, such as lack of ability, over their failures, and external attributions, such as luck, task difficulty or powerful others, over their successes (Jacobsen et al., 1986; Pearl, Bryant & Donahue, 1980). This pattern is opposite to that described in previous literature as self-serving attributional bias (Borkowski et al., 1990; Carr et al., 1991; Jacobsen et al., 1986). For example, Carr et al. (1991) suggested that these negative and dysfunctional attributional beliefs are important factors in discriminating under- and high achievers. According to their view, underachieving pupils fail to fully understand that their existing

knowledge, skills and experiences are products of their own abilities and efforts. This failure to adopt positive attributional beliefs about the importance of effort for performance is pivotal in how underachieving pupils feel about themselves, and in how they approach challenging academic tasks.

**Metacognition**

Metacognitive regulatory skills are defined as both *knowledge and awareness of cognition, and its control* (Brown, Bransford, Ferrera & Campione, 1983). Such skills interact in many ways with children´s attributional beliefs, self-concept and motivation in the contexts of underachievement and learning difficulties (Borkowski et al., 1990; Carr et al., 1991; Carr & Kurtz, 1990; Pintrich, Anderman & Klobucar, 1994a; Pintrich & De Groot, 1990). For example, an immature and dysfunctional self-system consisting of a negative academic self-concept and attributional beliefs has been suggested to contribute to the emergance of poor or ineffective metacognitive and self-regulatory strategies, which further leads to poor motivation and subsequent low learning results (Carr et al., 1991; Johnston & Winograd, 1985; Oka & Paris, 1987; Paris & Oka, 1986; Pintrich et al., 1994a; Schneider & Pressley, 1989; Wagner, Spratt, Gal & Paris, 1989).

**Psychological well-being**

It has also been suggested that low and underachievement may originate from low well-being. For example, low achievers (Seagull & Weinshank, 1984; Whitmore, 1980) and underachievers (Abrahamson, Seligman & Teasdale, 1978; Strauss, Lahey & Jacobsen, 1982; Valas, 1999) have been shown to exhibit behavioral characteristics indicative of *depression*. These results are not surprising, because it is easy to understand that clinical features of depression, such as a short attention span, poor memory, shortened task persistence, flattened affect and passive responses, are likely to decrease effective learning. However, relatively little research has examined the role of depression in academic underachievement (Abrahamson et al., 1978; Strauss et al., 1982).

There is also a considerable amount of research suggesting that *anxiety* interferes with learning and performance (Covington & Omelich, 1988; Everson, Smodlaka & Tobias, 1994). Tobias (1992), for example, suggested that anxiety interferes with learning on three levels: first, it inhibits the efficient preprocessing of new information, second, it interferes with applying new understanding to generate solutions to problems, and third, it interferes with the output of a response. Therefore,

pupils who are anxious in achievement contexts have difficulties in learning new material, in particular. They are also often unable to demonstrate what they have learned. Anxiety has also been shown to be associated with individuals´ self-schemata. For example, pupils have been shown to become most anxious in situations that threaten their self-esteem (Schwarzer & Jerusalem, 1992). It has also been found that pupils who are highly anxious have low perceptions of their academic competencies (Bandalos, Yates & Thorndike-Christ, 1995) and low self-efficacy (Pintrich & De Groot, 1990).

In addition, underachieving pupils have been described as introverted, more lonely and less accepted by their peers than other pupils (Dix, 1991; Seagull & Weinshank, 1984; Valas, 1999). Similarly, underachievers have been found to exhibit more social immaturity and antisocial behavior than high achieving pupils (Whitmore, 1980).

**Gender**

It has been suggested that being an underachiever (Dowdall & Colangelo, 1982; McCall, Beach & Lau, 2000; Whitmore, 1980) or a learning-disabled child or adolescent (Drabman, Tarnowski & Kelly, 1987) is primarily *a male phenomenon*. However, the pattern of gender differences seems to be relatively complex.

Some gender differences are evident in pupils´ achievement, self-related beliefs and metacognitive knowledge. It has been shown, for example, that males have more positive attitudes and self-concept, as well as higher levels of self-perceived skills and performance in mathematics (Adey, 1992; Eccles, Wigfield, Harold & Blumenfeld, 1993; Seegers & Boekaerts, 1996; Skaalvik & Rankin, 1994), whereas females have higher expectations, a more positive academic self-concept and higher performance in verbal skills (Adey, 1992; Aunola et al., 2000a; Eccles et al., 1993; Skaalvik, 1990; Skaalvik & Rankin, 1994). These differences are also in line with beliefs and expectations of parents and teachers (Frome & Eccles, 1998; Galper, Wigfield & Seefeldt, 1997; Jussim & Eccles, 1992). Furthermore, the effects of the academic self-concept on academic performance have been found to be stronger for boys than for girls (Song & Hattie, 1984).

Earlier research has found consistent gender differences in children´s and adolescents´ attributional style. Girls seem to be inclined towards attributing failures to internal factors, blaming, in particular, their insufficient ability, and attributing successes to external factors (Aunola et al., 2000b; Wigfield, 1988), whereas boys tend to use more self-enhancing (Aunola et al., 2000b) and external (Wigfield, 1988) attributions. This pattern has also been found among pupils with learning difficulties (Galloway, Leo,

Rogers & Armstrong, 1995; Hill & Hill, 1982; Licht & Dweck, 1983; Licht et al., 1985). Furthermore, females have been shown to be more likely than males to exhibit passivity and learned helplessness. By way of contrast, males frequently show self-concept-protective coping when faced with the possibility of failure (Aunola et al., 2000b; Craske, 1988; Hill & Hill, 1982; Jones & Berglas, 1978). Girls have also been reported to accept greater responsibility, and to have fewer adverse reactions than boys in coping with school failure (Rijavec & Brdar, 1997). Moreover, teachers have been shown to have a tendency to perceive maladaptive coping styles in the classroom more frequently in boys than in girls, although research evidence has suggested that there are no gender differences (Leo & Galloway, 1994).

## 2.2. Family characteristics

The family is an important environment in which the child learns how to cope with the demands of the surrounding world. It also influences the ways in which she or he perceives herself or himself. Not surprisingly, the role of a variety of family variables, such as the ways in which parents deal with the child, and the socioeconomic, structural and psychological family-background factors, have been investigated as antecedents of the child´s school performance and adjustment.

**Socioeconomic background**

Various socioeconomic conditions of the family, such as low levels of *parental education*, *socioeconomic status* and *family income,* have been found to be related to children´s underachievement at school (Bianchi, 1984; Chalip & Stigler, 1986; Gustafson, 1994; Lee-Corbin & Evans, 1996; Lorsbach & Frymier, 1992; Murray & Sandqvist, 1990; Norman & Breznitz, 1992; Pandey, 1984; Ricciuti, 1999; Spreen, 1988). It has also been shown that the effects of socioeconomic conditions in the family are mediated via the ways in which parents deal with their children and how they feel about their roles as parents. For example, low financial resources, poor socioeconomic factors, and parents´ low educational and occupational status seem to provide a basis for inadequate parenting and feelings of incompetence and stress (Conger, Conger, Elder, Lorenz Jr., Simmons & Whitbeck, 1992; Dodge, Pettit & Bates, 1994; Fox, Platz & Bentley, 1995; Goodnow, 1988; Kinnunen & Pulkkinen, 1998; Lempers, Clark-Lempers & Simons, 1989; McBride, 1991; McLoyd, 1990; Melson, Ladd & Hsu, 1993; Webster-Stratton & Hammond, 1988). Moreover, parents from lower socioeconomic and educational backgrounds have been shown to be less warm, to employ harsher discipline, and to have lower developmental expectations than parents from a higher

sosioeconomic and educational background (Aunola, Nurmi, Onatsu-Arvilommi & Pulkkinen, 1999; Concer et al., 1992; Lempers et al., 1989; McLoyd, 1990; Solis-Camara & Fox, 1996). Similarly, parents´ socio-economic and educational background has been shown to be associated with low psychological well-being and depression (Brody, Stoneman, Flor, McCrary, Hastings & Conyers, 1994; Goodnow, 1988; MacPhee, Fritz & Miller-Heyl, 1996; McLoyd, 1990), which may further affect their parenting abilities and resources.

**Family structure**

Numerous studies have reported that the composition of the family may be one source of children´s school problems. For example, *divorce and growing up in a single-parented or reconstituted family* have been shown to be a significant risk of school maladjustment and achievement problems (Coley & Hoffman, 1996; Demo & Acock, 1996; Downey, 1995; Featherstone, Cundick & Jensen, 1992; Mulkey, Crain & Harrington, 1992). It has been also shown that family structure influences children´s achievement via the socioeconomic and psychological conditions which affect parental well-being and the ways in which they rear their children (Avenevoli, Sessa & Steinberg, 1999; McLanahan, 1999). For example, poor financial resources and low socioeconomic status (McLanahan, 1999; Mulkey et al., 1992; Pong, 1997; Pong & Ju, 2000; Ricciuti, 1999), increased levels of single-parent stress (Forgatch, Patterson & Skinner, 1988), and a lack of time and energy to nurture and supervise children (Coley & Hoffman, 1996; Demo & Acock, 1996; Entwistle & Alexander, 1996; McLanahan, 1999) are probable factors contributing to the effects of a broken family structure on inadequate parenting and subsequent children´s achievement. It has further been found that mother-child disagreement (Kurdek, Fine & Sinclair, 1995; Solis-Camara & Fox, 1996), and the father´s absence (Beaty, 1995; Clark & Barber, 1994), as well as overall family instability (Lorsbach & Frymier, 1992; Weisner & Garnier, 1992), all have a negative impact on children´s academic progress and adjustment. Moreover, it has been shown that a *large number of siblings* is a significant risk factor for children´s achievement (Blake, 1989; Sputa & Paulson, 1995; Wagner, Schubert & Schubert, 1985), because the availability of parental financial and psychological resources, such as parent-child interaction, decreases as the size of the family increases (Downey, 1995; Polit & Falbo, 1989).

**Psychological climate**

A number of studies have shown that *the emotional climate of the family* plays an important role in the development of children´s achievement and school problems. For example, conflicts between family members, confusing and disorienting communication styles, and negative interpersonal attributions have been found to characterize the homes of low- and underachieving children and adolescents (Ditton, Green & Singer, 1987; Gonzalez & Hayes, 1988; Gustafson, 1994; Klein, Altman, Dreizen, Friedman & Powers, 1981; Rimm & Lowe, 1988; Shek, Lee & Chan, 1998; Wood, Chapin & Hannah, 1988). It is to be supposed that a negative atmosphere and conflicts in family relations provide a basis for children´s negative self-related perceptions and beliefs, and subsequent inadequate coping patterns at school. Such effects may originate from low well-being and negative self-beliefs of parents. For example, parental stress and overall low life dissatisfaction have been shown to lead to ineffective parenting (Loyd & Abidin, 1995; McBride, 1991; Webster-Stratton, 1990; Webster-Stratton & Hammond, 1988), and perhaps therefore to a deterioration in children´s performance, adjustment and discipline at school (Burbach & Borduin, 1986; Conger, Patterson & Ge, 1995; Hops, Sherman & Biglan 1990). Moreover, it has been found that a lack of parental support, encouragement and investment, and low parental competence beliefs and achievement expectations, contribute to poor achievement (Aunola et al., 2003; Galper et al., 1997; Gottfried, Flemming & Gottfried, 1994; Gustafson, 1994; Lee-Corbin & Evans, 1996; Shek et al., 1998; Wang, 1993).

Although a substantial amount of research has been carried out on the role of family in adolescent school performance and achievement, previous studies have at least two limitations. First, most of them have focused on examining low achievement among the normal population, and only a few have investigated adolescents who show severe underachievement. Second, only a few studies have examined the role of family background as the antecedent of the kinds of achievement-related beliefs and behaviors pupils show at school. Consequently, *this thesis (Study II) focused on investigating the role of some socioeconomic, structural and psychological family-background factors, such as parental education and socioeconomic status, and the composition and emotional atmosphere of the family, as antecedents of children´s underachievement, low performance and achievement-related beliefs and behaviors at school, and of their subsequent problems in adapting to society.*

# 3. A COGNITIVE-MOTIVATIONAL APPROACH TO UNDERACHIEVEMENT AND LOW PERFORMANCE

The development of school performance, adjustment and learning difficulties has recently also been approached from the process-oriented, cognitive-motivational perspective. In this approach, *learning* has been described *as a self-organizing dynamic process* consisting of a variety of cognitive and attributional processes.

## 3.1. Achievement strategies

There has been increasing interest in the strategies and response styles individuals deploy in achievement situations. Although achievement strategies have been conceptualized from a variety of viewpoints (e.g. Aspinwall & Taylor, 1992; Diener & Dweck, 1978; Jones & Berglas, 1978; Nicholls, Cheung, Lauer & Patashnick, 1989; Pintrich & De Groot, 1990), they could be described in terms of several psychological processes (Cantor & Kihlstrom, 1987; Nurmi, Salmela-Aro & Ruotsalainen, 1994; Pintrich & De Groot, 1990). First, individuals construct a variety of task-related beliefs and self-conceptions of their competencies in demanding achievement situations (Bandura, 1993; Cantor, 1990; Dweck, 1990). These beliefs are based on feedback people have received previously in the same kinds of situations (Rauste-von Wright, 1986). Such cognitive schemata then provide a basis for their mastery beliefs, anticipation of what will happen, and related emotions in a specific learning context (Cantor, 1990; Diener & Dweck, 1978; Frijda, Kuipers & ter Schure, 1989; Groteluschen, Borkowski & Hale, 1990; Pintrich, Roeser & De Groot, 1994b; Winne, 1997). Individuals´ anticipations and related emotions influence the ways in which they try to handle challenging tasks by setting goals, constructing strategies, monitoring behavior and investing effort (Cantor, 1990; Dweck, 1986; Graham & Golen, 1991; Norem, 1989; Pea & Hawkins, 1987; Pintrich & De Groot, 1990; Pintrich, Marx & Boyle, 1993; Showers & Cantor, 1985; Winne, 1997). The final stage of this process consists of the ways in which individuals interpret the behavioral outcomes in terms of causal attributions. A particularly important mechanism is the extent to which success and failure are attributed either to external factors, such as the situation, or to internal causes, such as skill or effort. Such causal attributions have also been shown to have consequences for individuals´ future self-conceptions (Bandura, 1993; Cantor & Kihlstrom, 1987; Taylor & Brown, 1988).

## 3.2. Maladaptive and adaptive achievement strategies

Two major cognitive and motivational patterns deployed in achievement situations have been described in the literature. First, *adaptive, task-focused achievement strategies and styles* have been analyzed in terms of several conceptualizations, such as `illusory glow optimism´ (Cantor, 1990), mastery-orientation (Diener & Dweck, 1978; Dweck, 1986), task-involved goal orientation (Nicholls et al., 1989; Skaalvik, 1997), positive (Craske, 1988) mastery-oriented motivational style (Pintrich et al. 1994b), and action-oriented (Mantzicopoulos, 1990) and active (Aspinwall & Taylor, 1992) coping strategies. Despite differences in terminology, all these strategies are characterized by internal control beliefs, positive affects, optimism, a high degree of task involvement, the construction of task-focused goals, intensive planning, high effort, persistence in the face of obstacles, and the use of self-serving attributions (Aspinwall & Taylor, 1992; Cantor, 1990; Craske, 1988; Diener & Dweck, 1978; Dweck, 1990; Dweck & Leggett, 1988; Graham & Golen, 1991; Groteluschen et al., 1990; Kurtz-Costes & Schneider, 1994; Mantzicopoulos, 1990; Pintrich & De Groot, 1990; Pintrich & Schrauben, 1992; Skaalvik, 1997).

Second, *maladaptive or task-avoidant achievement strategies* have also been described in terms of various concepts, such as self-handicapping (Jones & Berglas, 1978; Zuckerman et al., 1998), learned helplessness (Abrahamson et al., 1978; Diener & Dweck, 1978; Dweck, 1990; Seligman, 1975), blunting (Miller, 1987), self-deceptive types of coping (Gur & Sackeim, 1979), ego-involved (Salonen, Lepola & Niemi, 1998) and work-avoidant goal orientation (Nicholls et al. 1989), maladaptive motivational styles (Craske, 1988; Galloway et al., 1995; Schommer, Crouse & Rhodes, 1992; Thompson, 1993), and task-avoidant behaviors (Nurmi, Aunola, Salmela-Aro & Lindroos, 2001). These achievement strategies are characterized by external control beliefs, failure expectations, anxiety, low effort and persistence, avoidance of the task at hand, and a lack of the use of self-protecting causal attributions (Baumeister & Scher, 1988; Butkowski & Willows, 1980; Cain & Dweck, 1995; Comunian, 1993; Diener & Dweck, 1978; Hill & Hill, 1982; Kistner, White, Haskett & Robbins, 1985; Licht, 1993; Licht et al., 1985; McKeachie, 1984; Nurmi et al., 2001; Schommer et al. 1992; Thompson, 1993; Tice & Baumeister, 1990).

*One aim of this thesis (Study I) was to examine to what extent pupils who show low and underachievement deploy maladaptive and task-avoidant strategies in an achievement context, and to what extent this particular pattern fits those described in the literature.*

## 3.3. The development of achievement strategies at school: antecedents and consequences

There is a substantial amount of research on the role of individuals´ cognitive and attributional strategies in their school achievement (see e.g. Carr et al., 1991; Wagner et al., 1989). Research in the field has shown that adaptive, task-focused achievement strategies are associated with a high level of academic skills, such as reading and mathematics (Aunola et al., 2002; Aunola et al., 2003; Lepola et al., 2000), and overall high school performance (Galloway et al., 1995). On the other hand, the use of maladaptive, avoidant types of achievement strategies, including components such as failure expectations, a low level of persistence, and engaging in off-task and disruptive behaviour instead of task-focused behaviour, have been found to be linked to poor academic skills in reading and mathematics (Butkowski & Willows, 1980; Lepola et al., 2000; Wagner et al., 1989) and to overall learning difficulties (Galloway et al., 1995; Hill & Hill, 1982; Jacobsen et al., 1986; Kistner et al., 1985; Licht et al., 1985).

It has also been suggested that pupils´ self-related beliefs and their attributions of the causes of their failures and successes provide a basis for the achievement strategies they deploy (Cantor, 1990; Diener & Dweck, 1978; Groteluschen et al., 1990). Such self-related beliefs and causal attributions could be assumed to have their basis in pupils´ *preceding learning histories* (Bandura, 1993; Cantor, 1990; Diener & Dweck, 1978) *and the feedback* they have received concerning their achievement and previous failures and successes (Bar-Tal & Gottman, 1981; Diener & Dweck, 1978; Jones & Berglas, 1978). A positive academic self-concept and internal attributional beliefs lead to the anticipation of positive outcomes in challenging learning tasks (Aspinwall & Taylor, 1992; Cantor, 1990; Groteluschen et al., 1990; Kurtz-Costes & Schneider, 1994). These are then followed by task-focused goal setting, effective strategy construction, high monitoring, and a high level of effort investment (Cantor, 1990; Dweck, 1986; Graham & Golen, 1991; Norem, 1989; Pea & Hawkins, 1987; Pintrich & De Groot, 1990; Pintrich & Schrauben, 1992; Showers & Cantor, 1985; Winne, 1997). Consequently, among those who have a positive self-concept, the probability of success is high, and the use of a self-protecting attributional style even strengthens the future self-conceptions of a succeeding pupil (Bandura, 1993; Cantor & Kihlstrom, 1987; Taylor & Brown, 1988). In the case of failure, external attributional beliefs protect the high academic self-concept (Cantor, 1990; Taylor & Brown, 1988).

By contrast, pupils with learning difficulties and low school performance tend to appraise that their chances of success are low (Baumeister & Scher, 1988; Butkowski & Willows, 1980; Cain & Dweck, 1995; Snyder & Smith, 1982). This could

be assumed to be due to their previous learning histories, which are typically full of failure experiences (Butkowski & Willows, 1980; Diener & Dweck, 1978; Jacobsen et al., 1986). Consequently, when they are confronted with a challenging learning task, they expect to fail (Baumeister & Scher, 1988; Butkowski & Willows, 1980; Cain & Dweck, 1995; Snyder & Smith, 1982). As a consequence, they become anxious and tend to avoid the task, which increases the risk of performing poorly (Comunian, 1993; McKeachie, 1984; Jones & Berglas, 1978; Nurmi et al., 2001; Zuckerman et al., 1998). Several theories have been created to explain why some people avoid a task even though such avoidance increases the likelihood of failing. These include learned helplessness (Diener & Dweck, 1978; Seligman, 1975), self-handicapping (Jones & Berglas, 1978; Zuckerman et al., 1998) and anxiety avoidance (Miller, 1987). For example, the theory of *learned helplessness* suggests that some individuals are passive and avoid challenging tasks because they believe that learning outcomes are out of their personal control. These kinds of beliefs in external control have also been suggested to provide a basis for depression (Abramson et al., 1978). Moreover, it has been proposed that individuals who use a *self-handicapping strategy* tend to avoid actively challenging tasks at school, and by doing so they create excuses for the failure they are anticipating (Jones & Berglas, 1978). The function of such a strategy is to help the individual to cope with the anxiety due to the fear of failure and to maintain the self-perception of competence (McCrea & Hirt, 2001; Urdan & Midgley, 2001) or to appear competent to others (Elliot & Church, 2003).

However, earlier research on achievement beliefs, strategies and behaviour suffers from at least three limitations. First, the majority of the studies are cross-sectional (e.g. Butkowski & Willows, 1980; Cain & Dweck, 1995; Carr et al., 1991; Galloway et al., 1995; Jacobsen et al., 1986).Thus, they do not provide information about the extent to which it is the particular kinds of achievement strategies that lead to low achievement and learning difficulties, or vice versa. Second, earlier research has mainly dealt with late childhood and adolescence (e.g. Butkowski & Willows, 1980; Galloway et al., 1995; Jacobsen et al., 1986; Marsh, 1984; Pintrich et al., 1994b), and only few studies have been carried out with younger pupils (Butler & Orion, 1990; Cain & Dweck, 1995; Kurtz-Costes & Schneider, 1994; Wagner et al., 1989). Third, although several studies have examined the relationships between pupils´ achievement strategies and their academic performance, most of this research has concentrated on the overall achievement level. Only a few have focused on the development of special academic skills such as literacy and numeracy (e.g., Carr et al., 1991; Galloway et al., 1995). Consequently, *the aim of Study III was to use a cross-lagged longitudinal design to*

*investigate the prospective relationships between children´s achievement strategies, measured by teacher ratings, and the development of two major academic skills, reading and mathematics, during the first year of primary school. In Study IV, the findings of Study III were replicated by using self-reports of children´s achievement strategies, and teacher ratings of their skills.*

## 3.4. The development of achievement strategies in a family context

The etiology of achievement strategies has aroused surprisingly little attention among researchers. There is, however, converging evidence that parents have a consistent and long-term influence on their children´s motivational patterns, cognitive functioning and performance level (Aunola et al., 1999; Aunola et al., 2000b; Estrada, Arsenio, Hess & Holloway, 1987; Hess, Holloway, Dickson & Price, 1984; McGillicuddy-DeLisi, 1992). For example, it has been shown that *parents´ perceptions of their child´s ability*, *their competence beliefs and expectations* of the child´s achievement and learning results, *their attributional beliefs* concerning their child´s failures and successes, and *their overall beliefs about the role of ability and effort in school learning*, induce corresponding self-perceptions and beliefs in the child (Ames & Archer, 1987; Aunola et al., 2000a; Bar-Tal & Gottman, 1981; Eccles, 1993; Fincham & Cain, 1986; Frome & Eccles, 1998; Galper et al., 1997; Ginsburg & Bronstein, 1993; Hess et al., 1984; Hokoda & Fincham, 1995; Hokoda, Sanders & Fincham, 1987; Phillips, 1987; Warner & Phillips, 1992). Such beliefs, then, lead to more or less positive or negative motivational consequences and achievement results (Aunola et al., in press; Chapman & Tunmer, 1997; Ginsburg & Bronstein, 1993; Phillips & Zimmerman, 1990). It has also been suggested that such parental influence is relatively strong (Frome & Eccles, 1998; Phillips & Zimmerman, 1990; Wagner & Phillips, 1992) and starts early (Galper et al., 1997).

Recent research on socialization, focusing on *parent-child interactions* when the child and parent work together on learning tasks, has shown that *the emotional tone and responsiveness* in the maternal interactional style are important in determining the development of children´s achievement strategies (Dix, 1991; Estrada et al., 1987; Nolem-Hoeksema et al., 1995). Maternal sensitivity and responsiveness to their children´s ability perceptions and requests for help, and maternal support of children´s mastery behaviors, seem to increase the deployment of adaptive, task-focused and mastery-oriented achievement strategies (Covington, 1992; Hokoda & Fincham, 1995; Nolem-Hoeksema et al., 1995). In turn, mothers of children who apply maladaptive and passively-avoidant achievement strategies have been shown to use more derogatory

comments about their children´s competence, to show insensitivity to their children´s self-worth and ability beliefs, and more often to encourage their children to quit, than mothers of adaptive strategy users (Covington, 1992; Hokoda & Fincham, 1995). Furthermore, these mothers give less positive feedback and task-focused teaching statements when their children face failure compared to mothers of adaptive-strategy users (Hokoda & Fincham, 1995).

It has been suggested that emotional tone and responsiveness in parent-child interaction influence children´s cognitive and motivational development in three ways: (a) by affecting the parents´ tendency to engage and support their children in a challenging task, (b) by affecting children´s social competence and, consequently, the flow of information between children and adults, and (c) by affecting children´s willingness to approach and persist in tasks, and their attributional style (Bretherton & Waters, 1985; Dix, 1991; Estrada et al., 1987; Nolem-Hoeksema et al., 1995).

Many studies have also focused on *parenting styles*, such as authoritative, authoritarian, neglectful and permissive styles, during childhood and adolescence as antecedents of children´s achievement strategies (Baumrind, 1980, 1991; Maccoby & Martin, 1983; Pulkkinen, 1982). It has been shown, for example, that children of *authoritarian* parents deploying firm control through anxiety, supervision and a low level of trust and engagement, typically use maladaptive, task-avoidant achievement strategies consisting of passivity, task-irrelevant behavior and an attributional style lacking self-enhancing attributions (Aunola et al., 2000b; Maccoby & Martin, 1983). The children of authoritarian parents have also been described as obedient and conforming to standards, having a poor self-concept, an external locus of control, and a lack of interest and low activity at school (Barber, 1996; Grolnick & Ryan, 1989; Lamborn, Mounts, Steinberg & Dornbusch, 1991; Pulkkinen, 1982). It has been suggested that authoritarian parenting distracts a child from learning in the discouragement of active exploration and problem solving, and the encouragement of dependence on adult control and guidance (Hess & McDevitt, 1984). The effects of authoritarian parenting on children´s achievement and related problems at school may covary with a low level of parental education and the related cultural values, beliefs and socialization goals of the lower social classes, such as obedience and conformity (Aunola et al., 1999; Goodnow, 1988).

The opposite pattern, *authoritative parenting* emphasizing high parental involvement and emotional acceptance, psychological autonomy, and firm behavioral and monitoring control and supervision, provides a basis for the development of adaptive achievement strategies (Aunola et al., 2000b). It has also been found to be

associated with good school performance, strong school engagement and positive attitudes towards school and achievement (Grolnick & Ryan, 1989; Lamborn et al., 1991; Maccoby & Martin, 1983; Pulkkinen, 1982; Shucksmith, Hendry & Glendinning, 1995; Steinberg, Elmen & Mounts, 1989; Steinberg, Lamborn, Dornbusch & Darling, 1992; Weiss & Schwartz, 1996). Authoritative parents promote cognitive development by encouraging independent problem solving and critical thinking (Hess & McDevitt, 1984). The effects of an authoritative parenting style on children´s achievement are shown to be mediated via parental personality characteristics and learning history in terms of a high level of parental self-esteem, a low level of parental stress and the use of mastery-oriented achievement strategies (Aunola et al., 1999; MacPhee et al. 1996).

It has also been shown that *parents´ low well-being* in terms of *depression* (Beck, Rush, Shaw & Emery, 1979; Seligman, 1975), parental stress and overall life dissatisfaction, for example, interfere with the parent-child relationship and with parenting ability (Burbach & Borduin, 1986; Conger et al., 1995; Hops et al., 1990). For example, depressed mothers demonstrate a tendency to be intrusive, negative and critical, to become easily upset and angry when interacting with their children, to show little emotional responsiveness and warmth towards them, and to engage in low levels of monitoring, control and other disciplinary practices (Cohn, Campbell, Matias & Hopkins, 1990; Conger et al., 1995; Cox, Puckering, Pound & Mills, 1987; Dix, 1991; Downey & Coyne, 1990; Jouriles, Barling & O´Leary, 1988; Miller, Cowan, Cowan, Hetherington & Glingempeel, 1993; Nolem-Hoeksema et al., 1995; Panaccione & Wahler, 1986). Moreover, they have been shown to comply less with their children´s needs, to respond in ways that are incontingent with children´s behavior, and to expect too mature behavior from their children (Bettes, 1988; Kochanska, Kuczynski, Radke-Yarrow & Welch, 1987).

Depressive parenting affects the ways in which children perceive themselves, their subsequent behavior and how they cope with the challenges at school (Aunola et al., 2000b). For example, children of depressed parents show higher levels of maladjustment, attention-deficit and conduct disorders, and are more prone to passive and helpless achievement behavior than children of non-depressed parents (Dumas, Gibson & Albin, 1989; Harnish, Dodge & Valente, 1995; Hokoda & Fincham, 1995; Nolem-Hoeksema et al., 1995; Peterson & Seligman, 1984; Weissman, Prusoff, Cammon, Merikangas, Leckman & Kidd, 1984).

How parents think and feel about themselves in the context of parental roles and demands also appears to influence their children´s development. *Parenting stress* (Loyd & Abidin, 1995, Webster-Stratton, 1990), comprising feelings of

powerlessness, stress and insufficiency, has been found to lead to ineffective parenting and child-conduct problems (McBride, 1991; Webster-Stratton & Hammond, 1988).

However, earlier research has neglected at least three important issues. First, most studies have concerned older children or adolescents (Aunola et al., 2000b; Hokoda & Fincham, 1995; Nolem-Hoeksema et al., 1995), although parental influence might be assumed to be particularly important during the earlier years of childhood. Second, only a few studies have focused on the associations between parenting styles and children´s achievement strategies in particular. Finally, few studies have examined the role of parenting at the time when children are facing transition to primary school. Consequently, *one aim of this thesis (Study V) was to investigate the extent to which mothers´ and fathers´ parenting styles, their subjective well-being and parental stress are associated with the cognitive and attributional strategies their children apply in a classroom setting during their first year of primary school.*

## 4. STUDIES I AND II: ACHIEVEMENT STRATEGIES AND FAMILY BACKGROUND AS ANTECEDENTS OF UNDERACHIEVEMENT

### 4.1. Study I

**Aims**

The aims of Study I were to investigate (1) the extent to which underachievement and low performance at school are related to the deployment of dysfunctional and maladaptive strategies in an achievement context, and (2) whether the cognitive and attributional patterns found among underachievers and low achievers are in accordance with the self-handicapping or learned-helplessness pattern described in the literature.

**Participants**

**Sample 1** comprised twenty-four 13- to 14-year-old underachievers and their 24 matched-pair controls (non-underachievers), together with 24 achievers and their 24 matched-pair controls (non-achievers), from a comprehensive school (junior high school) in the Helsinki metropolitan area, who participated in Study I. The matching criteria were level of intelligence and age.

The assignment of the participants to the groups was based on a four-step process. (a) First, 220 pupils were given two ability tests: the Cattell and Cattell (1960)

Culture Fair Intelligence Test and the Verbal Reasoning Test (Työvoimaministeriön ammatinvalinnanohjaustoimisto, 1973). (b) Next, the average of the two IQ scores was converted to a z-score. (c) The individual pupils´ grade-point averages in their school reports were obtained from school archives and converted into z-scores. (d) Finally, each participants´ school-grade z-score was subtracted from his or her z-score for intelligence in order to obtain a criterion variable for the level of underachievement versus overachievement. (e) The following groups were formed: first, the pupils were assigned to the groups (1) **underachievers** (7 girls, 17 boys; difference score > 1.0), and (2) **achievers** (11 girls, 13 boys; d.s. < -1.0). Second, the groups of the matched-pair controls, called (3) **non-underachievers** (11 girls, 13 boys; difference score about 0) and (4) **non-achievers** (7 girls, 17 boys; d.s. about 0), were assigned to the underachievers and achievers groups.

  **Sample 2** comprised fifty-seven 14- to 19-year-old adolescents in the metropolitan area of Helsinki, who also participated in Study I. They formed three groups. (1) **The low-achieving group** consisted of sixteen 14- to 17-year-old pupils who were attending a special class for low achievers with severe school problems (kymppiluokka) after having left comprehensive school. (2) **The normal-achieving group** consisted of twenty 16- to 19-year-old vocational school pupils. (3) **The high-achieving group** consisted of twenty-one 16- to 17-year-old pupils from high school.

**Procedure**

  The participants were asked to fill in the following questionnaires: the Short Attribution-Style Questionnaire (SASQ, revised from the ASQ; Peterson, Semmel, von Baeyer, Abrahamson, Metalsky & Seligman, 1982), the Strategy and Attribution Questionnaire (SAQ; Nurmi, Salmela-Aro & Haavisto, 1995), Rosenberg´s (1979) Self-Esteem Scale, the revised Beck´s Depression Inventory (Beck et al., 1979), and the Cartoon-Attribution-Strategy Questionnaire (CASQ; Nurmi, Haavisto & Salmela-Aro, 1992).

  Twenty-four teachers participated in the rating of the participants in Sample I. One of them who met each pupil regularly each week was randomly selected and asked to rate one participant from each of the four groups using the Objective Strategy Assessment Scale (OSA; Nurmi & Onatsu, 1992).

**Measurements**

  The participants´ cognitive and attributional strategies were assessed using **the Strategy and Attribution Questionnaire** (SAQ; Nurmi et al., 1995), which

included the subscales Failure Expections, Task-Irrelevant Behavior, Reflective Thinking and Helplessness Beliefs.

**The Cartoon-Attribution-Strategy Questionnaire** (CASQ; Nurmi et al., 1992) is a projective type of questionnaire consisting of several two-picture cartoons. The participants were asked to answer questions concerning the causal attributions of the cartoon figure´s success and failure. The answers were then classified by two independent raters and placed in 10 different content categories. The sum scores for each content category were then calculated over two failure and two success situations. On the basis of these scores, four subscores were computed by adding up the causal attributions that refer to (A) the self or ability after success, (B) task-related factors or other people after success, (C) the self or ability after failure, and (D) task-related factors or other people after failure. The final total score for self-serving attributional bias was calculated using the formula A + D - B - C.

**Self-esteem** was assessed using a Finnish version of Rosenberg´s Self-esteem Scale (Rosenberg, 1979).

**Depression** was assessed using a revised version of Beck´s Depression Inventory (Beck et al., 1979).

The participants´ self-serving attributional bias was also measured on **the Short Attribution-Style Ouestionnaire** (SASQ; revised from the ASQ, Peterson et al., 1982) consisting of 4 hypothetical classroom situations (2 good and 2 bad outcomes). The participants were asked to rate them on two 5-point scales according to whether they thought that the outcome was due to factors relating to themselves, indicating internality, or to external factors, indicating externality. A new score measuring self-serving attributional bias was calculated as follows: the sum of the internality scores related to failure and the externality scores related to success was subtracted from the sum of the internality scores related to success and the externality scores related to failure.

**Teacher ratings** were obtained by asking the teachers to observe a certain pupil from each research group during one typical school period and then rate his or her behavior according to 24 statements on a 5-point rating scale (Sample 1). This Objective Strategy Assessment Scale (Nurmi & Onatsu, 1992) included the subscales Failure Expectations, Task-Irrelevant Behavior, Helplessness and Level of Motivation.

**Results**

In Sample 1, the underachievers reported lower levels of self-esteem and a higher level of task-irrelevant behavior than the non-achievers, whereas the achievers showed a higher level of self-esteem and a slightly lower level of task-irrelevant

behavior than the non-achievers. However, there were no differences in self-reported failure expectations, reflective thinking, helplessness beliefs or self-serving attributional bias.

Moreover, the teachers rated the underachievers as showing higher levels of failure expectations, task-irrelevant behavior and helplessness beliefs, and a lower level of motivation than the participants in the non-underachiever group. The achievers, in turn, were rated as showing lower levels of failure expectations, task-irrelevant behavior and learned helplessness, and a higher level of motivation, than the non-achievers.

In Sample 2, the low-achieving participants reported lower levels of self-esteem than the high-achieving group in particular. The low achievers also showed higher levels of task-irrelevant behavior and helplessness beliefs than both the normal and the high achievers. Moreover, both the low- and high-achieving participants reported lower levels of failure expectations than the normal achievers. The groups did not differ in reflective thinking, self-serving attributional bias, level of depression or causal attributions after success and failure, or in the two-way analyses of covariance on all the scores mentioned above in which gender was included.

**Discussion**

The results indicate that *underachieving and low-performing adolescents apply more dysfunctional and maladaptive cognitive and attributional strategies than achieving pupils*. These pupils showed lower self-esteem and higher levels of failure expectations and task-irrelevant behavior than the pupils in the control groups. However, the groups did not differ in the amount of self-serving attributional bias or depression. Thus, the cognitive and attributional patterns deployed by the underachieving and low-performing subjects were in accordance with the pattern described earlier as *self-handicapping* (Jones & Berglas, 1978), rather than with learned helplessness (Abrahamson et al., 1978). However, one finding did not match this pattern: the underachievers in Sample 1 showed higher levels of helplessness beliefs, and the low achievers in Sample 2 more signs of helpless passivity than the control groups. One plausible explanation for this is that it is not only low self-esteem, but also a lack of belief in personal control that may play an important role in increasing the use of self-handicapping at school.

On the other hand, the achievers showed higher levels of self-esteem and motivation, and lower levels of failure expectations and task-irrelevant behavior than the pupils in the control groups. Thus, they seemed to show a pattern similar to that

described earlier as *optimism* (Norem & Cantor, 1986) *or mastery-orientation* (Abramson et al.,1978).

## 4.2. Study II

**Aims**

The aim of Study II was to investigate (1) the extent to which under- and low achievement at school and subsequent problems in entering working life due to a low level of education, long periods of unemployment, and short employment periods are related to the level of parental education and socioeconomic status, and to the composition of the family, and (2) the extent to which the typical climate in adolescents´ homes, and parental control over the child´s behavior in a school-work context, are associated with underachievement (Sample 1).

**Participants**

The participants were the same as those in **Samples 1 and 2** in Study I. Moreover, the following three groups of young adults living in urban areas in Finland were studied in **Sample 3.** (1) **The unemployed group** consisted of twenty 16- to 24-year-old young adults (15 males, five females), who were chosen for the study by a local employment agency because of serious problems in entering working life. (2) **The health-problem group** consisted of fourteen 16- to 26-year-old young adults (nine males, five females) who had a variety of health problems (allergy, asthma, diabetes, hearing defects). (3) **The control group** comprised twenty-three 18- to 33-year-old adults (22 males, one female) who were attending a vocational school.

**Procedure**

The participants were asked to fill in a Family Background Questionnaire. The pupils in Sample 1 also filled in the Family Atmosphere Scale (Niemi, 1981) and the Parental Control Questionnaire (Onatsu & Nurmi, 1992).

**Measurements**

The participants were asked to rank **the educational level of both their parents**, separately, on a 3-point scale.

The participants were further asked to write down their mothers´ and fathers´ occupations. Based on these data, **the socioeconomic status of both parents** was categorized in terms of three alternatives (Tilastokeskus, 1989).

The participants were asked about the adults with whom they were living (Samples 1 and 2), or with whom they had spent their childhood and youth (Sample 3) (1=both parents, 2=single mother, 3=mother with a new partner, and 4=single father or father with a new partner) which indicated **their family composition**. This answer was recategorized in the following three categories: (1=both parents, 2=mother, 3=father).

The participants were asked to write down **the number of their siblings**.

The participants were also asked to rate **the typical atmosphere in their home** (the Family Atmosphere Scale; Niemi, 1981).

The participants were asked further to rate **the level of parental control** as they perceived it by answering a Parental Control Questionnaire (Onatsu & Nurmi, 1992).

**Results**

In Sample 1, underachievers were underrepresented among the participants living in families with both biological parents, whereas achievers were overrepresented in this group. What is more, underachievers were overrepresented among the participants living with a single mother, while achievers were underrepresented. In Sample 2, low achievers were underrepresented among the participants living with both biological parents, and overrepresented among those living in families with their mother and her new partner. Similarly, the group experiencing problems in adapting to society in Sample 3 was underrepresented among the participants who had lived in an intact family, and overrepresented among those who had lived only with their mothers.

Again in Sample 1, underachievers were overrepresented and their controls underrepresented among the participants whose mothers had the lowest educational level. In Sample 2, low achievers were overrepresented among the participants whose fathers had the middle level of education (occupational school) and middle socioeconomic status, and underrepresented among those whose fathers had the highest socioecomonic status. Moreover, high achievers were overrepresented among those whose fathers had the highest level of education and socioeconomic status, and underrepresented among those on the middle level of education and the lowest level of socioeconomic status. High achievers were underrepresented among the participants whose mothers´ had the middle level of education, and overrepresented among those whose mothers had the highest level of education and socioeconomic status.

Finally, the results from the Sample 1 showed that the underachievers rated the atmosphere in their families as more negative than the control group, and the achievers perceived a more positive atmosphere than their controls. Furthermore, both

underachievers and achievers reported that their parents controlled them less than the parents of their matched-pair controls.

**Discussion**

The results showed that two factors of critical importance in terms of adolescents´ and young adults´ problems at school and entry into occupational life were family composition and atmosphere. The low- and underachieving adolescents and the young "society drop-outs" frequently came *from families with a history of divorce*, and they were living or had lived their childhood and youth with a single mother or with the mothers´ new family. Moreover, *a negative and discordant atmosphere in the family* was found to play an important role when problems emerged at school. However, there was limited support (Sample 1, but not Samples 2 and 3) for the notion that adolescents and young adults with problems at school or with adapting to society come from families with a low level of parental education and socioeconomic status.

# 5. STUDIES III, IV AND V: THE DEVELOPMENTAL DYNAMICS OF CHILDREN´S ACHIEVEMENT STRATEGIES, BASIC SKILLS AND FAMILY BACKGROUND

Studies I and II dealt with pupils in late childhood, adolescence or young adulthood. It could be assumed, however, that adaptive and maladaptive achievement strategies develop much earlier. Consequently, the following three studies investigated the developmental dynamics of children´s achievement strategies, their basic academic skills, and their mothers´ and fathers´ well-being and parental stress as well as their parenting styles.

## 5.1. Study III

**Aims**

The aim of the study was to investigate the prospective relationship between children´s achievement strategies, expressed as teacher-rated behaviors, and their basic academic skills during the first school year. More specifically, the following questions were asked. (1) To what extent are pupils´ task-avoidant versus task-focused behaviors stable across the first school year? (2) To what extent are their reading and mathematical skills stable across this period? (3) To what extent do their task-avoidant

and task-focused behaviors predict their reading and mathematical skills? (4) Or, is it rather these skills that predict their achievement strategies?

**Participants and procedure**

One-hundred and five 6- to 7-year-old children (44 girls, 61 boys) from four classes in two primary schools situated in the Helsinki metropolitan area participated in the study.

The participants´ cognitive competence was tested in August at the start of the school year. After this, the participants were examined in October, January, and April during their first school year using the same test battery tapping achievement strategies and reading and mathematical skills. The teachers rated each pupil´s behavior in the classroom context using the Behavioral Strategy Rating Scale (Onatsu & Nurmi, 1995a). The pupils were also given the Reading Skills Test (Onatsu & Nurmi, 1995e) and the Mathematical Skills Test (Onatsu & Nurmi, 1995c).

**Measurements**
*Pretest*

The participants were tested at the start of the first primary-school year using the following set of cognitive school-readiness tests:

The participants took Goodenough´s (1926; Harris, 1963) **Draw-a-Man Test** to enable their general level of cognitive competence to be estimated in a group situation.

**The Visuo-Motor Copying Test** (Ljungblad, 1971) was used as an index of visuo-spatial competence.

**The Basic Reading Test** (Rönty, 1996) measures children´s ability to discriminate between different letters and sounds, and their ability to read. Each child was given a set of reading-related tasks. A special remedial teacher evaluated the children´s performance on these tasks using eleven categories based on reading ability (0="The child cannot name one letter/sound", 10="The child can read non-fiction stories with understanding").

*Measurements 1, 2 and 3*

**The Reading Skills Test** (Kananoja, 1995; Onatsu & Nurmi, 1995e) consists of the following three tasks measuring different aspects of reading skills: The Syllable Recognition Task, and Text Comprehension tasks I and II.

**The Mathematical Skills Test** (Kananoja, 1995; Onatsu & Nurmi, 1995c)

consists of the following four tasks: Ordinal Aspects of Numbers, Basic Addition, Basic Subtraction, and Verbal Mathematical Problems.

The classroom teachers were asked to evaluate the behavior of each of their pupils using **the Behavioral Strategy Rating Scale** (Onatsu & Nurmi, 1995a) consisting of subscales for Task-Irrelevant Behavior, Helplessness, and Lack of Persistence. They were asked to rate in a single session each pupil´s typical behavior, using 12 statements assessed on a 5-point rating scale.

## Results

Task-avoidant behavior and both basic academic skills were very stable across the three measurements. In addition, cognitive as well as specific reading- and mathematic-related competence measured before entry into school was positively associated with basic academic skills and negatively with task-avoidant behaviors at measurement 1 in both SEM models, which offered the most economical method for examining longitudinal data.

Moreover, high levels of task avoidance prospectively predicted low levels of reading skills, and a low level of reading skills predicted a high level of task-avoidant behavior. Furthermore, a low level of mathematical skills predicted a high level of task-avoidant behavior, but task-avoidant behavior did not predict subsequent levels of mathematical skills. In each case, the same SEM models fitted both boys and girls.

Examination of the mean differences showed that the boys had a higher level of task avoidance and an overall lower level of reading skills than the girls.

## Discussion

The results of Study III suggest that *children´s reading skills and the maladaptive and task-avoidant achievement strategies* they deploy in the classroom during their first school year seem to *form a cumulative developmental cycle*. Those who showed avoidant behavior improved less in their reading skills than those who turned to task-focused behavior. On the other hand, a low level of academic skills increased subsequent task-avoidant behavior, whereas good skills led to task-focused behavior.

No cumulative cycle was evident between the children´s mathematical skills and their use of achievement strategies. However, poor mathematical skills seemed to increase the children´s use of maladative and task-avoidant achievement strategies during their first school year.

### 5.2. Study IV

**Aims**

This study aimed at replicating the findings of Study III by examining childrens´ achievement strategies through both self-reported beliefs and academic skills as rated by teachers. More specifically, the following research problems were investigated. (1) To what extent are pupils´ adaptive, task-focused versus maladaptive, task-avoidant achievement strategies stable across the first school year? (2) To what extent are their reading and mathematical skills stable across this period? (3) To what extent do children´s adaptive, task-focused versus maladaptive, task-avoidant achievement strategies prospectively predict their subsequent reading and mathematical skills development? (4) Or, is it rather these skills that predict their self-reported achievement strategies?

**Participants and procedure**

The participants were the same as in Study III. They were examined four times during their first school year: in August as a pretest of their school readiness, and in October, January, and April using an identical set of scales. They filled in the Strategy Test for Children (Onatsu & Nurmi, 1995f) three times. Similarly, their teachers assessed each pupil´s competence on the Reading Skills Scale (Onatsu & Nurmi, 1995d) and on the Mathematical Skills Scale (Onatsu & Nurmi, 1995b)

**Measurements**
*Pretest*

**The Draw-a-Man Test** (Goodenough, 1926; Harris, 1963), **the Visuo-Motor Copying Test** (Ljungblad, 1971), and **the Basic Reading Test** (Rönty, 1996) were again used to measure cognitive school readiness.

*Measurements 1, 2 and 3*

**The Reading Skills Scale** (Onatsu & Nurmi, 1995d) for teachers includes two components. Each classroom teacher evaluates each pupil´s reading skills first using ten categories that, with the exception of the first two, are identical to those in the Basic Reading Test used in the pretest ("Name the highest level of reading skill in which the pupil operates well". 1="The child cannot name all the letters/sounds taught to her/him", 2="The child can name all the letters/sounds taught to her/him", 10="The child can read non-fiction stories with understanding), and second on another scale ranging from 1 to

10 ("Evaluate by using the following scale the level of reading skills of this particular pupil with the typical level of children of the same age". 1="very poor"; 10="very good").

**The Mathematical Skills Scale** (Onatsu & Nurmi, 1995b) for teachers has also two components. Each classroom teacher is asked to rate each pupil´s mathematical skills first using eight categories ("Name the highest level of mathematical skill in which the pupil operates well". 1="The child cannot do simple addition and subtraction tasks in the number field from 0 to 5", 8="The child can do addition and subtraction tasks using numbers over 100"), and second on another scale ranging from 1 to 10 ("Evaluate by using the following scale the level of mathematical skills of this particular pupil with the typical level of children of the same age". 1="very poor"; 10="very good").

**The Strategy Test for Children** (STC; Onatsu & Nurmi, 1995f) assesses children´s cognitive and attributional achievement strategies. The author read aloud each set of 12 alternative statements to the children, who were asked to choose the one of two alternatives that fitted best to what they thought about the matter. The STC includes subscales for Task-Irrelevant Behavior, Helplessness Beliefs, and Lack of Persistence.

**Results**

Achievement strategies and both basic academic skills were shown to be stable across the three measurements. In addition, specific reading- and mathematic-related competences measured before entry into school were positively associated with basic skills and negatively with task-avoidant achievement strategies at measurement 1.

Furthermore, the use of maladaptive achievement strategies prospectively predicted low levels of reading skills, and a high level of such strategies predicted a low level of mathematical skills. In turn, low levels of reading and mathematical skills did not predict the deployment of maladaptive achievement strategies. Again, the same SEM models fitted both the boys and the girls.

An examination of the mean differences showed that the boys had an overall lower level of reading skills and a higher level of mathematical skills than the girls.

**Discussion**

The results of Study IV showed that the kinds of *achievement strategies* the children reported deploying in the classroom during their first school year seem to *provide a basis for the development of their academic performance in reading and mathematics* as evaluated by their teachers. Those reporting a maladaptive, task-avoidant

type of strategy in the classroom showed poorer reading and mathematical skills than those who reported the use of adaptive achievement strategies. However, the children´s progress in reading and mathematical skills did not affect the kinds of achievement strategies they deployed later on, as was the case in Study III.

## 5.3. Study V

**Aims**

This study investigated the extent to which maternal and paternal well-being and parenting styles are reflected in the cognitive and attributional achievement strategies children deploy in the classroom during their first year of primary school. Three specific research questions were addressed: (1) the extent to which parents´ depressive symptomatology and parenting stress are related to the achievement strategies children use at school, (2) the extent to which different aspects of authoritarian and authoritative parenting styles are reflected in these achievement strategies, (3) the extent to which parental well-being is associated with parenting styles, and finally, (4) the extent to which parental well-being influences children´s achievement strategies directly, or whether these influences are mediated via parenting styles.

**Participants and procedure**

The participants were the same as in Studies III and IV. The cognitive and attributional achievement strategies of these pupils were assessed using the Strategy Test for Children (Onatsu & Nurmi, 1995f), which they filled in January at Measurement 2.

At about the same time, the parents of each child were asked to fill in the following inventories: Gerris´ Parental Stress Inventory (Gerris, Vermulst, van Boxtel, Janssens, Van Zutphen & Felling, 1993), a revised version of Beck´s Depression Inventory (Beck et al., 1979), and a Finnish version (Pulkkinen, 1996) of Block´s Child-Rearing Practices Report (Roberts, Block & Block, 1984; Kochanska, 1990). Seventy mothers (66.7%) and 54 fathers (51.4%) returned completed questionnaires.

**Measurements**

Children´s cognitive and attributional achievement strategies were assessed using **the Strategy Test for Children** (Onatsu & Nurmi, 1995f), which included the subscales for Failure Expectations, Task-Irrelevant Behavior, Helplessness Beliefs, Lack of Persistence, and Search for Social Support.

**Parental Depression** was assessed using a revised version of Beck´s

Depression Inventory (Beck et al., 1979).

   **Parental stress** and feelings of powerlessness in parenting were measured on Gerris´ Parental Stress Inventory (Gerris et al, 1993; Pulkkinen, 1996).

   **Parenting styles** were assessed using a Finnish version of the revised (Kochanska, 1990; Pulkkinen, 1996) Block´s Child-Rearing Practices Report (CRPR; Roberts et al., 1984). The CRPR included the following subscales: (1) Encouragement of Independence, (2) Expression of Affection, (3) Rational Guidance, (4) Authoritarian Control, (5) Supervision of the Child, and (6) Control by Anxiety. The subscales were also combined in two more global scales (Kochanska, 1990): the Authoritative scale consisting of subscales 1, 2 and 3, and the Authoritarian scale consisting of subscales 4, 5 and 6.

   As **background measures,** the parents were also asked about the composition of their family ("with whom do you live at the moment? 1=with my spouse and our children, 2=with a co-habitation partner and our children, 3=as a single parent with my children, 4=in a marriage relationship with a new partner and my children from an earlier marriage/relationship).

**Results**

   The mothers´ depressive symptomatology contributed significantly to the predictions of their children´s use of maladaptive and task-avoidant achievement strategies. The more depressive the mothers were, the higher levels of failure expectations and helplessness, the less persistence, and the more search for social support their children showed in the school context. Task-irrelevant behavior did not show any correlation.

   Moreover, the less the mothers expressed emotion, the more their children reported failure expectations, task-irrelevant behavior, helplessness beliefs and lack of persistence, and the less they showed rational guidance, the more their children showed task-irrelevant behavior and a lack of persistence. On the other hand, the more the mothers showed authoritarian control, the more their children reported persistence and the less they reported helplessness, and the more the mothers showed affection, the less their children sought social support.

   Moreover, the mothers´ depressive symptomatology influenced their children´s failure expectations, helplessness beliefs, lack of persistence and search for social support via expressions of affection. Maternal depressive symptomatology influenced their children´s helplessness beliefs and lack of persistence via authoritarian

control, and lack of persistence also via the encouragement of independence and rational guidance.

As far as the fathers´ were concerned only the fathers´ parenting stress added to the prediction of the children´s use of maladaptive strategies. The more parenting stress they reported, the more their children showed failure expectations, task-irrelevant behavior, lack of persistence and the need for social support in a classroom setting.

**Discussion**

The results of Study V showed that the parents´ subjective well-being and parenting styles were associated with the achievement strategies their children applied at school. *The mothers´ depressive symptomatology and how this was reflected in their parenting styles*, especially in their less positive emotions when interacting with their children, seemed to play a key role in the emergence of maladaptive, task-avoidant achievement strategies in the classroom. Moreover, *the fathers´ feelings of stress and powerlessness in the context of parenting seemed to increase their children´s adoption of maladaptive strategies*. These results support the notion that different types of school-related problems, which emerge during school years, have, at least partially, their roots outside school.

**6. GENERAL DISCUSSION**

The present thesis examines children´s and adolescents´ school achievement and learning difficulties from a cognitive-motivational perspective in which learning is described as a self-regulated dynamic process. *The overall aim of the five studies was to examine the relationship between the achievement strategies the children and adolescents deployed, and their family background and school performance.* Studies I and II concentrated on underachieving and low-performing adolescents, whose cognitive and attributional achievement strategies and family background were examined as the possible antecedents of their low school achievement. The results showed that the deployment of a self-handicapping strategy (Jones & Berglas, 1978) in achievement contexts, the breakdown of the original family and a discordant family atmosphere were associated with problems at school and afterwards. Studies III and IV reported an attempt to investigate the developmental dynamics of children´s achievement strategies and their basic academic skills using a cross-lagged longitudinal design. The

achievement strategies the children applied during their first school year, and their basic academic skills, seemed to form a cumulative developmental cycle: the use of maladaptive, task-avoidant strategies lead to the slower development of basic skills, which increased the likelihood of using maladaptive strategies later on. Study V examined the role of maternal and paternal well-being, and of parenting styles and stress, in the children´s achievement strategies. Maternal depressive symptomatology, and how it was reflected in parenting styles, and the fathers´ feelings of stress and powerlessness in the context of parenting, were found to increase the children´s adoption of maladaptive strategies in the classroom setting.

## 6.1. Achievement strategies among underachieving and low-performing adolescents

According to the results of Study I, the ways in which adolescents approached and dealt with challenging tasks in achievement contexts seemed to be associated with their academic performance at school. *The underachieving and low-performing adolescents applied more dysfunctional and task-avoidant cognitive and attributional achievement strategies than the other pupils.*

The underachieving and low-performing pupils showed low self-esteem, high levels of failure expectations and task-irrelevant behavior, but did not differ from the other pupils in terms of self-serving causal attributions. This pattern resembled *a self-handicapping strategy* (Jones & Berglas, 1978) rather than the learned helplessness (Abrahamson et al., 1978; Seligman, 1975) that is described in the literature. Thus, the findings suggest that, because of a low academic self-concept, underachievers expect failure, and therefore adopt task-irrelevant behaviors rather than construct task-oriented plans. The function of this behavior may be to create behavioral excuses for expected failure. Even though this strategy increases the likelihood of failure in the classroom context, it may also have some positive outcomes, because it helps the underachiever to cope with failure expectations. By self-handicapping, a person is able to defend himself or herself against negative feedback concerning the academic self-concept, and to maintain a self-perception of high ability (McCrea & Hirt, 2001; Urdan & Midgley, 2001). Self-handicapping may also provide the means to avoid "losing face" in public classroom situations (Elliot & Church, 2003).

Unlike the underachievers and poor performers, *the achievers* seemed to apply a pattern that was similar to the one described earlier as *optimistic* (Norem & Cantor, 1986) or *mastery-oriented* (Abramson et al., 1978). Because of high self-esteem, achievers are optimistic, expect to do well, concentrate on the task at hand and actively

think about how to approach it, and typically do well. Thus, these findings suggest not only that the use of dysfunctional, task-avoidant strategies increases the likelihood of failure, but also that functional, task-focused strategies may increase the likelihood of success in a school-related achievement context.

## 6.2. The family environment as a developmental context of school problems

The present results emphasize the influence of family on young people´s problems at school and on their entry into occupational life. First, as revealed in Study II, *the breakdown of the original family, and single parenting, seemed to lead to an increase in low achievement and difficulties at school, and to subsequent problems*: underachieving and low-performing adolescents were being raised by a single mother or in their mother´s new family. There are several plausible explanations for this result. For example, it may be that factors such as the lack of parental caretaking, often caused by the father´s absence (Beaty, 1995; Clark & Barber, 1994), or the lack of time, money and resources to give to parent-child interaction (McLanahan, 1999; Pong & Ju, 2000), make adolescents vulnerable to problems at school and later in entry into occupational life. Moreover, mothers´ psychological problems, stress, and even depression related to divorce and single parenting (Forgatch et al., 1988; Snyder, 1991), may also interfere with their parenting and discipline practices in terms of mother-child disagreement and discordant child-parent interaction, for example (see for a review, Dix, 1991), which in turn may impair achievement.

Second, *a negative and discordant atmosphere in the family* was found to be associated with poor performance at school. One explanation for this may be that a negative family atmosphere and conflicts in family relationships provide a basis for a low self-concept and external control beliefs, and in this way increase the use of dysfunctional and task-avoidant achievement strategies at school, which in turn may lead to underachievement. These findings are in line with those in earlier studies according to which both the composition of (e.g. Coley & Hoffman, 1996; Demo & Acock, 1996; Featherstone et al., 1992) and the atmosphere (Gustafson, 1994; Rimm & Lowe, 1988; Wood et al., 1988) in the family have an important role in the development of poor achievement.

Consistently with earlier studies (Gustafson, 1994; Rimm & Lowe, 1988), it was also found that living in an intact family with a positive emotional atmosphere and highly-educated and well-to-do parents is conducive to effective school learning and high achievement. It appears that an intact family and stable family relations (Lorsbach

& Frymier, 1992; Weisner & Garnier, 1992), high educational expectations, and parental models of high and valued education (Aunola et al., 2002) provide a basis for children´s and adolescents´ school motivation, learning and achievement.

The results of Study V, which focused on first graders, revealed further that parents´ subjective well-being, and their parenting styles, seem to provide a basis for their children´s achievement-related beliefs and behavior. *The mothers´ depressive symptomatology, and how this is reflected in their less authoritative parenting styles*, especially in their less positive emotions when interacting with their children, *seemed to play a key role in the emergence of maladaptive and task-avoidant achievement strategies*. It is possible that a lack of maternal engagement, responsiveness and guidance, and the intrusiveness and negativeness that are typical of the parenting of a depressive mother (Cohn et al., 1990; Conger et al., 1995; Miller et al., 1993; Nolem-Hoeksema et al., 1995), will foster maladaptive achievement-related beliefs and behavior such as passivity in an achievement context. These findings are in line with earlier ones of Cox et al. (1987), Miller et al. (1993), Nolem-Hoeksema et al. (1995), and Seligman, Peterson, Kaslow, Tanenbaum, Alloy and Abrahamson (1984).

*Fathers´ feelings of stress and powerlessness in the context of parenting* and handling child-parent interaction were also found to increase their children´s adoption of maladaptive and task-avoidant cognitive and attributional strategies at school. These results fit well with some earlier findings suggesting that parenting stress is associated with children´s adjustment and discipline problems at school, and with poor academic performance (Conger et al., 1995).

In turn, the mothers´ parenting styles turned out to be significant for their children´s achievement strategies at school. *Authoritative parenting related to high well-being was beneficial in their adoption of adaptive and task-focused strategies*. These results suggest that the encouragement of independence, the opportunity to learn competencies in an atmosphere of responsiveness, acceptance and trust, and the provision of competence-promoting feedback may foster adaptive achievement strategies among children (Covington, 1992; Hokoda & Fincham, 1995; Maccoby & Martin, 1983; Nolem-Hoeksema et al., 1995). These results are consistent with those of earlier research (Estrada et al., 1987; Lamborn et al., 1991; Maccoby & Martin, 1983; Marjoribanks, 1983; Steinberg et al., 1989; Steinberg et al., 1992). Similarly, *maternal authoritarian control* was found to be related to the development of children´s adaptive strategies. This result is contrary to earlier findings suggesting that parental authoritarian control is negatively associated with children´s positive self-conception (Lamborn et al., 1991) and active exploration and problem solving (Hess & McDevitt, 1984). One

possible explanation for this inconsistency is the children´s young age in this case. All the findings showing that authoritarian parenting styles have a negative impact on children´s school-related behavior have concerned early or late adolescents (Hess & McDevitt, 1984; Lamborn et al., 1991; Shucksmith et al., 1995). It is possible that firm control and supervision provide a basis for the development of adaptive and task-focused strategies during childhood, whereas they may have a negative impact later on when adolescents begin to search for more autonomy in their parental relationships. Second, it is possible that authoritarian control is associated with high demands for achievement during childhood, and has also been shown to be associated with a high level of encouragement (Onatsu & Nurmi, 1997).

Overall, the results of this thesis suggest that the social, structural and psychological family background may be an important source of children´s school difficulties. Therefore, interventions aimed at minimizing children´s and adolescents´ underachievement and other school problems may benefit from focusing on family, parenting and maternal and paternal well-being.

## 6.3. The developmental dynamics of achievement strategies and academic skills

The results of Study I showed that adolescents´ achievement strategies were associated with their school achievement. The results of Studies III and IV, in which cross-lagged longitudinal data were used, revealed that *the children who showed a tendency to deploy maladaptive, task-avoidant achievement strategies improved less in their reading skills* than those who turned to task-focused strategies. These findings held even after controlling for school readiness for reading and overall cognitive competence early in school life. They were replicated both by the use of self- and teacher-reported achievement strategies, and academic performance measured by tests and teacher ratings. They are also consistent with those in earlier cross-sectional studies (Carr et al., 1991; Wagner et al., 1989; Wigfield & Guthrie, 1997).

It was further shown in Study IV that the children who reported the use of a maladaptive and task-avoidant achievement strategy at the beginning of primary school *showed less development in their teacher-rated mathematical skills* later on during their first school year. Again, these results were in accordance with some previous cross-sectional findings (Galloway et al., 1995), although they differed from those of Study III. The pupils who, according to their teachers´ perceptions deployed task-avoidant behavior in an achievement context, did not develop more slowly in mathematical skills during their first school year than the pupils using task-focused strategies. These

differences between the results of Studies III and IV may be due to the fact that children´s achievement-related beliefs (self-reported) reflect a component of their achievement strategies that is influential in the development of their mathematical skills, but not evidenced in their behavior in the classroom, as their teachers perceive it.

What is more, the results of Study III showed that *children´s slow progress in reading skills and poor mathematical skills, and related feedback, increased their subsequent tendency to turn to the use of maladaptive, task-avoidant strategies in an achievement context*, whereas good skills led to the use of task-focused strategies. These findings are consistent with some earlier cross-sectional findings (Butkowski & Willows, 1980). However, poor skills were not influential in the kinds of achievement strategies reported later on in the spring term of the first grade. This suggests that the first months in primary school are the most critical period for the development of achievement strategies. This may be due to several factors. Firstly, it may be that children have already developed their achievement strategies during pre-school and during the first months of primary school, and therefore the feedback they receive concerning their skill development later on during the first grade no longer has an influence on their achievement strategies. The finding that their self-reported strategies were relatively stable across the first school year provides some support for this hypothesis. Secondly, it may be that, at the beginning of primary school, children´s conceptions of how they tackle school tasks are not sufficiently detailed to be influenced by the feedback they receive concerning skill development.

The developmental dynamics of achievement strategies and academic skills were found to be similar for boys and girls. Similarly, there were no gender differences in the level of strategy use in the children´s own view. However, the teachers perceived that the boys tended to display more task-avoidant behaviors while working in the classroom than the girls. Furthermore, the boys showed lower reading skills in both studies, but higher mathematical skills during the first school year, as rated by their teachers. These results are consistent with earlier findings (Davies & Brember, 1999; Lindsay & Desforges, 1999; Luotonen, Uhari, Uhari, Aitola, Lukkaroinen & Luotonen, 1998; Manger & Eikeland, 1998).

It has been assumed on the basis of earlier conceptualizations of achievement strategies that maladative strategies may in fact include two separate types of behavior: helplessness or passive avoidance (Abramson et al., 1978; Diener & Dweck, 1978; Seligman, 1975), and task-irrelevant behavior or active avoidance (Hill & Hill, 1982; Jones & Berglas, 1978; Miller, 1987; Zuckerman et al., 1998). This was not the case in Studies I, III and IV. Helplessness, task-irrelevant behavior and a lack of

persistence formed a homogenous construct in all the measurement models. There are at least two alternative explanations for this. The first is that, after all, it is the same individuals who lack beliefs in personal control and who deploy task-irrelevant behaviors. Turning to active avoidance may be motivated either by creating excuses for the expected failure, as suggested in self-handicapping theory (Jones & Berglas, 1978), or by efforts to decrease anxiety, as assumed in literature on blunting (Miller, 1987). Both failure expectations and related self-handicapping, and anxiety and related blunting, could be assumed to be based on individuals´ helplessness beliefs about how they can cope with the situation. The second explanation is related to the age of the children. It is possible that the avoidance strategies young pupils deploy in the classroom develop into different patterns only when they grow older. This means that some children develop a self-handicapping pattern during their later school years, whereas others may turn to passive avoidance or a blunting type of coping.

Overall, the results revealed that *the achievement strategies* children apply during their first school year, *together with their reading- and mathematic-related cognitive skills, seem to form a cumulative*, either positive or negative, *developmental cycle*. This cumulative-developmental-cycle phenomenon has been described earlier in terms of *a self-perpetuating cycle, the Matthew* or *the snow-balling effect* (Douglas & Peters, 1974; Groteluschen et al., 1990; Stanovich, 1986; Weiner, 1994). Early and numerous repeated failure experiences lead to feelings of helplessness, maladaptive attributional beliefs and a low academic self-concept, which then decrease children´s subsequent achievement efforts and persistence. This, in turn, increases the likelihood of failure in the school context. This finding emphasizes the importance of making an effort to break such a negative cycle early enough during the first school years, or even in preschool, before it leads to negative, long-term effects on school achievement, and to problem behavior.

## 6.4. Limitations

The studies reported in this thesis have some limitations that need to be considered in any attemps to make generalizations based on the results. First, Studies I, II and V were cross-sectional. Consequently, they do not allow for analysis of the causal relationship between low performance and maladaptive achievement strategies, on the one hand, or between low performance, maladaptive strategies, and family background and parenting on the other. It is possible, for example, that the types of strategies pupils apply influence their parents´ well-being and parenting style, or the family atmosphere. Consequently, there is an evident need for longitudinal research in which pupils´

achievement strategies and their family background are investigated several times during their childhood and adolescence. Furthermore, it would also be interesting to examine the role of some other family-background variables, such as parents´ and children´s perceptions of parent-child interaction, and parental beliefs and expectations concerning their offspring´s competencies in the development of achievement strategies. For example, parents´ own achievement strategies (Aunola et al., 1999) and attributional beliefs and expectations concerning their offspring´s achievement (Aunola et al., 2000a; Frome & Eccles, 1998; Galper et al., 1997) have been found to relate to children´s and adolescents´ achievement. Moreover, it would be useful to examine the major social and psychological processes that are responsible for the negative impact of single parenting.

Second, although Studies III and IV were based on intensive cross-lagged procedures, the sample sizes were relatively small, which may lead to the overfitting of the particular model examined. Moreover, they did not include any measurements of perceived task difficulty (Efklides, Papadaki, Papantoniou & Kiosseoglou, 1998), which may have influenced pupils´ achievement strategies and the teacher-pupil interactions.

Third, Studies I and II focused on adolescents, and Studies III, IV and V on primary-school pupils. It is possible that some achievement beliefs and strategies develop earlier, during preschool years or even before. Such beliefs and strategies were shown to form cumulative developmental cycles in Studies III and IV. Consequently, it would be interesting to examine the developmental dynamics between achievement strategies and different areas of school readiness in preschool, or even before in kindergarten, to find out when and how the negative and positive developmental cycles begin to develop. Future efforts are also needed to investigate what the underlying mechanisms in family, kindergarten and school environments are which contribute to such developments. Related to this is the evident need to develop new methods for the evaluation of achievement strategies of very young children.

Finally, none of the studies included data on teacher- and classroom-related variables. Consequently, it would be important in future research to focus also on the role of teacher-related factors, such as attributional beliefs and expectations concerning pupil performance, teaching methods, and pupil-teacher interactions, as well as on the role of social relationships between pupils in a classroom, in the development of children´s and adolescents´ achievement strategies.

## 6.5. Practical implications

The results of the studies presented in this thesis have several significant implications in terms of helping pupils who show low achievement and problem behavior at school. First, the transition to primary school, and the first school year, were found to be an important time in the formation of pupils´ achievement beliefs and strategies. The use of maladaptive strategies was also found to provide a basis for learning difficulties. Consequently, one useful intervention to counteract low school performance would be to make an effort to break such negative cycles, i.e. maladaptive strategies, and subsequent learning difficulties, early enough during the first school year, or even earlier, before they lead to a negative, long-term impact on children´s school achievement, and to problem behavior. One possibility for such an intervention might be to screen children early on, e.g., in child-welfare clinics or kindergarten before school, in order to identify those who are at risk of having learning difficulties and subsequent problems at the time compulsory education begins. *The screening* should consist of *the evaluation of basic cognitive skills*, but may also include evaluation *of mastery beliefs and typical ways of coping with challenging or difficult tasks*, i.e., pupils´ achievement strategies. The identification of children at risk should then be followed by *effective psycho-educational interventions* in preschool or even earlier.

Second, the achievement strategies pupils apply in the school context were found to be important determinants of their school performance. The use of maladaptive and task-avoidant strategies was shown to lead to low performance and learning difficulties, even among pupils with high cognitive capacities like the underachievers in Study I. Overall, the results suggest that interventions aiming to help children with learning difficulties should involve efforts *to change their achievement-related beliefs and related motivational strategies, in addition to cognitively-oriented procedures*. It has even been claimed that it is easier to promote achievement via interventions aimed at changing maladaptive, task-avoidant strategies than to focus on low cognitive competence (Thompson, 1993).

There are *two psychological processes that play an important role* in pupils´ achievement strategies and subsequent school achievement. These *are self-knowledge of competence and causal attributions*. Consequently, these two mechanisms may be important targets for effective interventions aimed at changing pupils´ achievement strategies. These interventions may include some of following procedures: first, teachers may make an effort to prompt and assist underachieving pupils to set explicit and detailed short-term personal goals, within their more general learning goals (e.g., I will learn, what, until when, how, how well). Such *personal goal-setting* may

make it possible for them to end up with more realistic and highly-committed goals, to plan more effectively the means for carrying them out, and to monitor more fully the progress of their learning with the teacher´s assistance. This procedure could be seen as an attempt to increase pupils´ achievement motivation by enhancing their self-related mastery and control beliefs by making a task to appear more manageable. It could also raise their perceptions of competence by giving continual feedback. Another way to positively contribute to pupils´ achievement beliefs and strategies is to provide them with evaluation that promotes their competence beliefs in achievement contexts. In order to achieve that, teachers may enhance a positive learning atmosphere by avoiding relative evaluation using symbols such as grades. Rewards that symbolize success are based on relative performance that leads to experience of failure for some pupils. Thus, the use of this kind of evaluation should be minimized. By emphasizing *the evaluation of performance over time* rather than focusing on differences between pupils, self-improvement rather than social comparison would become the dominant goal (Covington, 1984; Craske, 1988). This kind of evaluation could promote especially low-achievers´ self-knowledge of competence by focusing on personal improvement instead of difficulties to meet the standards set by school authorities.

A second possible intervention is *attributional restructuring*: For instance, teachers may use the theory of attribution, and encourage their pupils *to take credit for their successes whenever possible and reasonable*. This could be done, for example, in tutoring sessions in which teachers offer pupils assessment feedback by explicitly emphasizing the role of their effort, i.e., the importance of the self as a causal agent in achievement situations. This could also be enhanced by informing pupils about the assessment criteria against which successful performance is judged (Thompson, 1993). Thus, teachers should give their pupils a clear picture of what shows improvement, and then base external evaluation on personal improvement. In addition, teachers could help pupils *to realize that some of their failures may be due to external factors*, such as task difficulty or insufficient effort, rather than to their inadequate abilities (Abrahamson et al., 1978; Carr & Borkowski, 1989; Cecil & Medway, 1986). In general, it is important to avoid low-ability attributions for failure. Attributional restructuring should also be done very carefully so that it does not decrease pupils´ self-protective causal attributions.

The third possible intervention is to reformulate *the learning situations* in ways *that would promote adaptive and effective achievement behavior among low-performing pupils*. For example, learning situations could be made less competitive and more task-oriented. This could be done by making an effort to create *a community of*

*learners* (Stipek, 2002). To create such community, teachers need to focus more on monitoring activities to do with learning and understanding rather than pupils´ behavior. Similarly, teachers could assist pupils in developing constructive relationships with each other. In this kind of learning community, co-operative learning, which means that an individual pupil within a team takes responsibility for some part of an achievement enterprise, could be introduced. Within this community, teachers could also teach pupils to be respectful of each other. This kind of positive climate encourages pupils to help each other in learning by noticing other pupils´ improvement, and also helps them to take risks, accept temporary failures, and to reveal their lack of understanding.

One additional way to help children at risk of low performance and with learning difficulties would be *to provide primary- and secondary-school teachers with information* about the role of maladative, task-avoidant achievement strategies as antecedents of learning difficulties. Although it could be claimed that teachers are aware of these kinds of `symptoms´, they do not typically have enough information about their meaning and etiology, or about available interventions. This raises new challenges for teacher education and teachers´ further training. For example, it is important that teachers understand that task-avoidant achievement strategies are to some extent functional for some pupils because they give them the possibility to maintain positive perceptions of their competence and self-worth and to reduce anxiety and humiliation in the short run, although they make real success impossible in the long run. Providing this information would help teachers to show more respect to low-achieving pupils. One way of showing respect is to maintain high expectations. Research has shown that pupils are very well aware of teachers´ expectations of them (Brattesani, Weinstein & Marshall, 1984; Good & Brophy, 1986).

The third broader practical implication originates from the results suggesting that the childhood family plays an important role in the development of children´s problems at school: the ways in which parents respond to, tutor and control their children seem to significantly affect the development of self-related beliefs, and cognitive and attributional achievement strategies, which in turn influences school performance. Consequently, *effective interventions* aiming to help children with learning difficulties *should take into account the family context* as well. An authoritative parenting style was found to be beneficial in encouraging high self-related beliefs and subsequent high school performance. In turn, mothers´ depressive symptoms which were reflected in low level of authoritative parenting, and fathers´ feelings of stress and powerlessness in the context of parenting, were found to be associated with children´s school problems. These results suggest that children with learning problems could be

helped at school *by providing parents with counselling to support them in their parenting*. One aim of this family counselling might be *to promote certain features of authoritative child-rearing practice*, such as parental involvement and trust, increasing opportunities to learn in a positive and supportive atmosphere, the encouragement of active problem-solving attemps, and child-centered monitoring and control. Secondly, family counselling may also include efforts *to decrease parental well-being problems*, such as depression and parenting stress, *and enhance parents´ personal resources*, and thus to minimize their negative consequences for child development. In order to provide such counselling, both school psychology services as well as child and adolescent psychiatric-counselling services should be increased. This may also require promotion of cooperation between pupil welfare services at school and psychiatric counselling services outside school (e.g. family counselling, youth treatment centres) in order to provide psychological support for the families who need it.

Furthermore, the results of this thesis suggest that living in a family with a negative and discordant atmosphere, and the breakdown of the original nuclear family, increases children´s problems at school. It could be further supposed that pupils´ problems within their families have an effect on their self-related beliefs and achievement motivation, and on how they approach the challenging situations at school. Consequently, *psycho-educational interventions used in schools* to help pupils with learning difficulties and other school-related problems should not be restricted to cognitively-oriented practices and efforts to change achievement-related beliefs and consequent achievement strategies. Such interventions *should also involve psychological counselling to support the children´s psychological well-being,* especially when they have problems within their families. The challenging task for special-education and pupil welfare services at school is to find new and effective ways to take into account pupils´ living conditions in their efforts to help them with their learning difficulties and other school problems. For example, psycho-educational supportive group interventions for pupils from divorced families have been used in schools with good results in increasing school-related competencies among other gains (Emery, Kitzmann & Waldron, 1999).

## 6.6. Conclusions

The findings of the studies included in this thesis provide a basis for the following conclusions. First, it seems that it is not only the `cold cognitions´ such as the contents of various subjects and academic skills taught at school, but also a variety of `hot cognitions´ that develop in the school context, and also play an important role in

school achievement. For example, achievement-related beliefs and strategies, including self-related beliefs, expectations and emotions, seem to play an important role in low achievement and learning difficulties.

Second, pupils´ school achievement and the achievement beliefs and strategies they deploy, seem to form accumulative, self-perpetuating cycles. This is an important finding because it suggests that negative developmental patterns may be influenced either by focusing on decreasing problems in skill development, or alternatively by promoting positive self-related beliefs and the use of more functional achievement strategies in the classroom context.

Third, the results suggested that negative cycles including learning difficulties and negative self-beliefs start to develop early on, during the first school year or even before. This finding suggests that early intervention may be used to prevent the onset of such cycles and the later problems they may lead to.

Finally, family-related factors, such as a discordant atmosphere in the family, parental psychological-welfare problems, single parenting, and parenting styles overall, were found to be associated with children´s use of maladaptive strategies. This suggests that interventions related to learning problems and related strategies should include those that involve working with parents and families.

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