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OF TURKU**

DEVELOPMENT OF CHILDREN'S MOTIVATIONAL ORIENTATIONS FROM AGES 4 TO 9:

**Stability and changes of motivational profiles before
school-age as a function of early language skills**

Satu Laitinen



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Abstract

This dissertation aims to contribute to our understanding of the developmental patterns of motivational orientations in young children and how these patterns are associated with language skills. Motivation research has traditionally concentrated on school-age children. Thus, less is known about motivation and its development before school, even though the links between motivation and learning skills have been found to exist among young children. The first general aim of this dissertation is to theoretically enlarge and deepen our understanding of motivation and its structure, stability, and association with language skills before a child enters school. Methodologically, the second general aim is to develop methods to capture and analyze the development of 4–6-year-old children's motivational orientations. Third, empirically the intention was to identify the developmental associations between preschoolers' motivational orientations, pre-reading skills, and children's task-specific interest by using multisource perspectives. These methods allow us to evaluate children's behavior in adult-guided learning situations in a day-care center, along with the associations of those behaviors with the children's task-specific interests and language skills. On a practical level, by analyzing motivation and its association with language skills, the fourth general aim of this dissertation is to explore and promote professional development in early education by identifying children's developmental strengths and the risk factors related to their learning trajectories. To achieve these general aims, this work comprises four empirical studies. The studies rely on the data from two research projects: The Promo research project includes assessment data from 130 children aged 4, 5, and 6, 82 of which were followed until the third grade (The Promo-research project, 2007–2013). The data included, for instance, teacher evaluations of the children's motivational orientations, standardized tests of the children's language skills, and self- and parental evaluations of the children's task-specific interests. The second longitudinal data were based on the 1-year Bunny Stories intervention study that analyzed listening comprehension (The Bunny Stories Intervention Study, 2011–2013). The sample comprised 4–5-year-old children ($N = 22$), and both teacher evaluations of the children's motivation and video observations of the children's behaviors during the intervention were used.

First, to test the factor structure and stability of motivation, a Child Behavior and Motivation Rating scale was developed and examined in Study I. The latent confirmatory factor analysis revealed a three-factor solution consistent with the theoretical dimensions of task orientation, task-avoidance, and social dependence orientation. The results also indicated the tested model had sufficient measurement invariance across the participants' ages (4, 5, and 6 years of age).

The analyses showed moderate stability in task orientation and task-avoidance orientation from 4–6 years old. These results contribute to previous studies on motivation by showing that differentiation in motivational orientations can be observed by the age of 4, and those behavioral differences have a tendency to stay as the child grows older.

In the second study, children's motivation was studied using a person-centered approach to identify motivational profiles groups of children with similar motivational tendencies. Three groups of children with distinctive motivational orientation profiles—task-oriented, undifferentiated, and task-avoidance—were identified using latent profile and latent transition analyses. The motivational profiles were relatively stable across all studied ages. Further, the children's probability of belonging to a certain group was based on their previous task orientation. In addition, when children between the ages of 4 and 6 showed an increase in language comprehension skills, their probability of belonging to a task-oriented profile group increased (Study II). In addition, children who belonged to a task-avoidance profile group at age 6 showed less task orientation and more of a task-avoidance orientation in the third grade than children with a task-oriented profile at age 6.

Study III focused to examine and demonstrate the development of 4–5-year-old children's motivational orientations during Bunny Stories program. The development of motivation was measured using both teacher ratings and four video observations in the context of reading sessions. The observation categories included on-task behavior, off-task behavior, and undifferentiated on-task behavior. The results of the teachers' perceptions showed that task orientation developmentally increased. In addition, the observations showed that the children progressively displayed on-task orientation, while undifferentiated task and off-task orientation decreased during the intervention program.

Finally, in Study IV, the purpose was to examine the role of pre-reading skills in children's development of motivational orientations and task-specific interest in reading-related and play-like activities at day-care settings and at home. Based on reading precursors (i.e. phonological awareness and letter knowledge) and language comprehension skills (i.e. listening comprehension and vocabulary knowledge), the children with low pre-reading skills showed higher social dependence orientation and lower task orientation over time than children with high pre-reading skills. In Study IV, the children with high pre-reading skills showed the largest increase in their interest in reading-related activities from ages 4 to 6, and interestingly, the children with average pre-reading skills continued to be the most interested in play-like activities. In addition, the parents whose children had high pre-reading skills perceived that their children showed the most interest in reading-related activities, while the parents whose children had low pre-reading skills perceived that their children showed the most interest in play-like activities at home. The findings indicate that early reading precursors and language comprehension skills are linked to children's motivation in day-care and to their interest in academic and play-like tasks in day-care and home contexts.

To conclude, the results of these four studies indicate that motivational orientations play a role in the ways that young children approach and master learning tasks. Children's motivational orientations were observed to diverge already by the age of 4. A dominating task-avoidance orientation and increased social dependence orientation tend to intensify existing learning difficulties and risk for academic exclusion, whereas a dominating task orientation fostered children's progressive learning trajectory. The findings emphasize the importance of recognizing the strengths and weaknesses in young children's motivational tendencies and preferences and in the academic resources children use. To optimally support young children's motivation and learning skills, it should take into account children's perspective and interests in the task at hand, as well as the teacher's and parents' perceptions in different contexts.

Keywords: motivational orientations, language skills, pre-reading skills, longitudinal study, young children, confirmatory factor analysis and latent profile analysis

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Tiivistelmä

Tässä väitöskirjassa tarkastellaan pienten lasten motivaatiota, sen rakennetta, pysyvyyttä ja yhteyttä kielellisten taitojen kehittymiseen. Motivaation on havaittu olevan yhteydessä oppimisen valmiuksiin ja taitoihin, mutta motivaatiotutkimus on perinteisesti keskittynyt kouluikäisiin ja alle kouluikäisten lasten motivaatiosta tiedetään vähemmän. Tämän väitöskirjan tavoitteena on teoreettisesti ja empiirisesti laajentaa ymmärrystämme motivaatiosta, sen kehityksestä ja yhteydestä kielellisiin valmiuksiin jo ennen kouluikää. Menetelmällisesti tavoitteena on kehittää arviointivälineitä pienten lasten motivaation analysointiin ja sen kehitykselliseen tarkasteluun. Arviointivälineiden avulla voidaan arvioida tehtävään suuntautumisen yhteyttä lapsen kiinnostuksenkohteisiin sekä kielellisiin taitoihin, ja ne ottavat huomioon sekä lasten kanssa työskentelevien aikuisten havainnot että lasten omat käsitykset toiminnastaan päiväkodissa ja vanhempien havainnot lapsista kotona. Väitöstyön käytännön tavoitteena on edistää varhaiskasvattajien ammatillista kehittymistä tunnistaen lapsen oppimiseen ja motivaatioon liittyviä vahvuuksia ja tuen mahdollisia tarpeita.

Tavoitteiden saavuttamiseksi tässä väitöstutkimuksessa toteutettiin neljä tutkimusta (artikkelit I, II, III ja IV) kahdessa eri tutkimusprojektissa. Promo-tutkimusprojektin (Promo-projekti, 2007–2013) tutkimusaineisto koostui 130 lapsesta, joita on arvioitu 4:n, 5:n ja 6 vuoden iässä. Lapsista 82 seurattiin 3. luokalle asti. Tutkimusaineistona ovat opettajien arviot lasten motivaationaalisista orientaatioista, lasten itsearviot ja vanhempien arviot lasten kiinnostuksen kohteista päiväkodissa ja kotona, sekä testisarjoilla arvioidut lasten kielelliset taidot. Jänistarinat-tutkimusprojektin (Jänistarinat-projekti, 2011–2013) tutkimusaineisto koostui 22:sta 4–5-vuotiaasta lapsesta, joiden tehtävämotivaatiota arviointiin opettaja-arvioinneilla ja video-observoinneilla yhden vuoden kestävän kuullun ymmärtämisen taitojen kehittymistä tukevan ohjelman aikana.

Ensimmäisessä osatutkimuksessa (artikkeli I, Promo-projekti) arvioitiin lasten motivaation rakennetta ja pysyvyyttä päiväkodissa 4–6-vuoden iässä tutkimusta varten kehitetyllä (CBeMo) menetelmällä. Teoreettisesti perusteltu ja konfirmatorisen faktorianalyysin tulosten tukema kolmifaktorinen rakenne tehtäväsuuntautuneisuudesta, välttämissuuntautuneisuudesta ja sosiaalisesta riippuvuussuuntautuneisuudesta kuvasi parhaiten lasten motivaation rakennetta ja sen toistuvuutta kolmen vuoden ajan. Tehtäväsuuntautuneisuus ilmensi lapsen sitkeyttä, itsenäistä haasteiden ottamista ja itseohjautuvuudelle ominaista oman toiminnan suunnittelua ja pohdintaa päiväkodin askartelu- ja toimintatilanteissa. Välttämissuuntautuneisuus kuvasi lapsen negatiivisia tunteita, oman suoriutumisen moittimista ja oheis- ja/tai sijaistoimintaa. Sosiaalista riippuvuussuuntautuneisuutta ilmensi lapsen ulkoisen vihjeen ja suoritusmallin noudattaminen, esimerkiksi jäljittely, takertuminen toveriin ja/tai aikuiseen ja välitön avun pyytäminen toverilta.

Lasten tehtävä- ja välttämissuuntautuneisuus olivat tulosten mukaan kohtuullisen pysyviä taipumuksia jo 4–6 ikävuoden iässä. Tulosten perusteella lasten toiminta päiväkodin tehtävötilanteissa eriytyy havaittujen motivaatioulottuvuuksien suhteen jo 4-vuotiailla ja erot lasten välillä näyttäivät säilyvän kehityksellisessä tarkastelussa..

Toisessa osatutkimuksessa (artikkeli II, Promo-projekti) lasten motivaatioperustaa tutkittiin yksilöllisestä näkökulmasta. Tutkimuksessa havaittiin, että lapset voitiin jakaa kolmeen erillaiseen ryhmään heidän tehtävötilanteissa havaittujen motivaatioprofiiliensa perusteella. Nämä alaryhmät nimettiin tehtäväorientoituneen, eriytmättömän ja tehtävää välttelevän profiilin motivaatioryhmiksi. Lapsista 58 % motivaatioprofiili pysyi samanlaisena neljästä ikävuodesta kuuheen ikävuoteen. Huomionarvoista oli neljän vuoden iässä arvioitun tehtäväsuuntautuneisuuden merkitys tehtäväorientoituneeseen ryhmään kuulumisessa yli ajan; mitä korkeammaksi opettajat olivat arvioineet lasten tehtäväsuuntautuneisuuden neljän vuoden iässä, sitä suuremmalla todennäköisyydellä he kuuluivat tehtäväorientoituneiden ryhmään myöhemmin. Ne lapset, jotka kuuluivat tehtävää välttelevien ryhmään kuusivuotiaana, osoittivat 3. luokalla vähemmän tehtäväsuuntautuneisuutta ja enemmän välttämissuuntautuneisuutta kuin tehtäväorientoituneet lapset kuusivuotiaana.

Kolmannessa osatutkimuksessa (artikkeli III, Jänistarinat-projekti) lasten tehtäväsuuntautuneisuutta tarkasteltiin opettajien arvioinnin lisäksi video-observoimalla lapsiparin toimintaa Jänistarinat-ohjelman aikana. Video-observointi pohjautui tehtäväsuuntautuneisuuden, eriytmättömän tehtäväsuuntautuneisuuden ja ei-tehtäväsuuntautuneisuuden motivaatioulottuvuuksiin ja niitä vastaaviin käyttäytymisiin. Opettajien arvioima tehtäväsuuntautuneisuus kehittyi positiivisesti ja tilastollisesti merkitsevästi Jänistarinat-ohjelmaan osallistuneilla lapsilla. Video-observointeihin perustuvat tulokset osoittivat myös, että ohjelman toteutuksen myötä lasten tehtäväsuuntautuneisuus lisääntyi ja eriytmätön tehtäväsuuntautuneisuus sekä ei-tehtäväsuuntautuneisuus vähenivät.

Neljännessä osatutkimuksessa (artikkeli IV, Promo-projekti) tutkittiin yhteyksiä pienten lasten motivaation, heidän kiinnostuksen kohteidensa (päiväkodissa ja kotona) sekä heidän lukemisvalmiuksiansa ja ymmärtämistaitojensa välillä. Lapset, joiden lukemisvalmiudet (kirjaintieto ja fonologiset taidot) ja ymmärtämistaidot (kuullun ymmärtäminen ja sanavarasto) arvioitiin heikoiksi, osoittivat korkeampaa sosiaalista riippuvuussuuntautuneisuutta ja alhaisempaa tehtäväsuuntautuneisuutta kuin lapset, joiden lukemisvalmiudet ja ymmärtämistaidot olivat hyvät 4–6 vuoden iässä. Vastaavasti mitä paremmat lasten kielen ymmärtämistaidot (ohjeiden ymmärtäminen) olivat 4–6-vuotiaana, sitä suuremmalla todennäköisyydellä he kuuluivat tehtäväorientoituneiden ryhmään (ks. artikkeli II). Lisäksi havaittiin, että mitä korkeammat lasten lukemisvalmiudet ja ymmärtämistaidot olivat 4–6-vuoden iässä, sitä kiinnostuneimpia he olivat lukemiseen liittyvistä tehtävistä, kun taas lapset, joiden lukemisvalmiudet ja ymmärtämistaidot olivat keskivertoisia, olivat ennemmin kiinnostuneita toiminnallisista leikeistä. Vanhempien arviot lasten kiinnostuksen kohteista ovat samansuuntaisia edellä olevan kanssa siltä osin: mitä taitavimmat lukemisvalmiudet ja ymmärtämistaidot lapsella oli, sitä kiinnostuneempi lapsi oli vanhempien mukaan lukemiseen liittyvistä tehtävistä myös kotona, ja mitä heikommat lapsen lukemisvalmiudet ja ymmärtämistaidot olivat, sitä vahvemmin vanhempi arvioi hänen olevan kiinnostunut leikeistä. Tulokset osoittavat, että varhaiset lukemisen valmiudet ja ymmärtämisen taidot ovat yhteydessä motivaation kehittymiseen päiväkodissa sekä lapsen kiinnostuksen kohteisiin eri ympäristöissä, nostavat esille myös leikin merkityksen kielellisesti heikompia lasten motivaation kannalta.

Neljä osatutkimusta osoittavat, että alle kouluikäisillä voidaan havaita erilaisia oppimis- motivaatiotaipumuksia jo päiväkodin ohjatuissa tehtävötilanteissa. Motivaation kehityksellinen eriytyminen havaittiin alkavan jo neljän vuoden iässä. Hallitseva lapsen välttämissuuntautuneisuus ja lisääntynyt sosiaalinen riippuvuussuuntautuneisuus ovat yhteydessä lapsen alhaisiin kielellisiin taitoihin ja heikompaan lukemisen kiinnostukseen. Hallitseva tehtäväsuuntautuneisuus

on yhteydessä vahvempiin kielellisiin taitoihin ja myös kiinnostukseen lukemistehtävistä. Tehtäväsuuntautuneisuus on olennaista pienten lasten oppimisen kannalta. Siksi lasten motivaation havainnointi eri tehtävätilanteissa jo ennen esiopetusikää on oppimistutkimuksen ja lapsen yksilöllisen ohjaamisen kannalta tärkeää.

Avainsanat: motivaatio, tehtäväsuuntautuneisuus, välttämisseuntautuneisuus, kielelliset taidot, lukemisvalmiudet, pitkittäistutkimus, pienet lapset, konfirmatorinen faktorianalyysi, latentti profiilianalyysi

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So, first of all, I wish to express my deepest gratitude to my supervisors, Professor Marja Vauras and Associate Professor Janne Lepola, for their admirable and profound expertise on the development of motivation and learning in children. I especially thank my first supervisor, Marja Vauras, for supporting my process and scaffolding me toward new challenges with lofty standards. I am very grateful to my second supervisor, Janne Lepola, for putting the idea of a doctoral dissertation into my head, encouraging me to tackle scientific work, and providing a platform for me to understand the mechanisms of learning.

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In Purokatu, November 2018

Satu Laitinen

List of empirical studies

This doctoral dissertation is based on the following four empirical studies, which are reported in four original articles. The publishers of the original articles have granted permissions for the use of these respective articles in this doctoral dissertation. The empirical studies are referenced in the text by their Roman numerals:

Study I Lepola, J., Laitinen, S., & Kajamies, A. (2013). Pienten lasten motivaation rakenne ja pysyvyys [Structure and stability of motivation among young children]. *Psykologia*, 48(4), 256-273.

Laitinen contributed to the study's aims and design. She was responsible for validating the Child Behavior and Motivation Rating (CBeMo) scale and was involved in building the theoretical approach to interpret the results of the analysis.

Study II Laitinen, S., Lepola, J., & Vauras, M. (2017). Early motivational orientation profiles and language comprehension skills: From preschool to Grade 3. *Learning and Individual Differences*, 53(7), 69-78.

Laitinen was responsible for the study's conception and design, data analysis, and writing of the manuscript. She also contributed to the data collection of the follow-up sample.

Study III Laitinen, S., Mattinen, A., Kajamies, A., Vauras, M., & Lepola, J. (2013). Pienten lasten tehtäväsuuntautuneisuus ja sen kehittyminen päiväkodin lukuokioissa [Small children's task orientation and related development in kindergarten's reading sessions]. *Kasvatus*, 44(5), 482-493.

Laitinen was responsible for the study's conception and design. She also wrote the manuscript and was responsible for the collection and analysis of the motivation data. For interrater reliability she trained one observer in analyzing dyads of intervention study and young children's motivational behavior.

Study IV Laitinen, S., & Lepola, J. (in review). The role of pre-reading skills in the development of motivation and task-specific interest from preschool to kindergarten.

Laitinen was responsible for the study's conception and design. She also wrote the manuscript and was responsible for the data analysis.

1 Introduction

Crucial elements in children's early learning are their natural curiosity, general behavioral approaches, and interest in the surrounding world. They want to imitate adults and peers, ask adults questions, and master and learn from everything they do and experience. Even before formal guidance or teaching (Whitebread, 2012), young children enthusiastically explore (Branscombe, Burcham, Castle, & Surbeck, 2013) and are affected by responsive social contexts, which can be seen as prerequisites for learning and individual development (Salonen, Lehtinen, & Olkinuora, 1998).

As children approach 3.5 years old, they begin to evaluate not only their actions' outcomes but also their own abilities against standards of excellence, and this self-evaluation can be seen in their expressive behaviors, including emotions such as pride and shame (Brunstein & Heckhausen, 2010). Evidence also indicates that around 4–5 years old, differences emerge in children's approaches to tasks, such as preferences for challenging or non-challenging tasks (Smiley & Dweck, 1994). Children's behavioral approaches at this stage have been found to exhibit intrinsic and extrinsic motivation toward learning tasks, which affects their participation in learning activities (Harter, 1981). These early self-focused and behavioral differences are known to influence subsequent language and academic skills in unique and varied ways (Lepola, Niemi, Kuikka, & Hannula, 2005).

To date, most developmental studies on children's motivation (i.e., adaptive goals in coping with learning and task demands) have focused on school-age children (Berhenke, Miller, Brown, Seifer, & Dickstein, 2011), with some exceptions (Hulleman, Schrager, Bodmann, & Harackiewicz, 2010; Vauras, Salonen, Lehtinen, & Kinnunen, 2009; see also an earlier review by Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). Little is known about the development of children's motivation and language skills before entering school. These domains clearly do not develop separately from one another, so this dissertation explores young children's adaptive goals in coping with learning and task demands (i.e., motivational orientations), the development of motivational orientations across ages and settings, and the associations of these motivational orientations with language skills.

Children's behavioral approaches to learning situations not only reflect individual ability or skills, but are also based on the situational and develop-

mental nature of adaptive efforts in socially guided and shared learning situations (Salonen et al., 1998). In the present dissertation, the different dimensions of children's behavioral approaches to learning situations are conceived of as motivational orientations, and developmental continuity and the association of motivational orientations with language skills are of likewise interest. Child development is seen as the product of a continuous dynamic process of interaction between the child and various social contexts (e.g., peers, day-care, home, etc.). Outcomes are not independent of the child because his or her previous experiences may be a strong determinant of current behaviors, producing a tendency to form different types of developmental patterns that are reflected in the cumulative advantage, compensatory, or stable difference models¹ (cf. Lepola, 2000; Northrop, 2017).

Day-care and home are the main learning contexts for young children; in these environments, they learn to interact with significant others, such as early education professionals (teachers, nurses, etc.), peers, and parents. The perspectives of the significant others may influence the children's approaches and motivation toward learning tasks, and they also shape the children's language skills. The current dissertation uses data from two projects to examine the development of children's general motivational orientations toward learning. Children's motivation is examined by means of direct and indirect methods, that is, teacher ratings are characterized as indirect, while observations are direct in nature. The approach to the development of children's motivation is both variable oriented and person centered. Thus, the associations between the variables and their relationships over time was tested, as well as identified the children's differing motivational orientation tendencies, analyzing the stability or change of these patterns over time. It is assumed that the children's general approaches toward learning situations depend on both the immediate context or task and the prior experiences and skills that a child brings to the specific learning situation. The current work explores this issue through teacher ratings and the children's interest in different learning-related situations in both day-care and home contexts. The importance of developing and evaluating the measures of motivation for young learners are stressed because there are only a few tools for evaluating the strengths and weaknesses a

1 According to Northrop (2017), the cumulative advantage model determines that children with high-level skills continue to widen the gap between their peers as time goes on, the same as with higher achieving children in the stable difference model, based on differences in their initial ability; this remains true even if the children exhibit similar growth rates. In addition, the compensatory model is described by Northrop (2017) and states that children with low-level skills can reach the same levels of achievement as their peers, for example, during an intervention study.

child shows as she or he is approaching learning situations (cf. Whitebread & Pino-Pasternak, 2013). In addition, children's motivation toward learning situations are video observed and analyzed. The associations between motivation toward learning situations, language skills, and task-specific interest are studied by means of multiple ratings, including teacher, parent, self-report, and experimenters' perspectives. Finally, one important question is whether language comprehension skills can predict later motivational tendencies and whether pre-reading skills are associated with general motivational tendencies and the children's task-specific interests.

The present work includes two parts. The first part includes the introduction, aims, and methods, overview of the empirical studies, main findings, and discussion, encompassing the methodological and pedagogical considerations. The second part comprises the four empirical studies, addressing an assessment of and the associations between children's approaches to learning situations, language skills, and task-specific interests.

1.1 Motivational orientations in young children

According to Ford (1992) motivation construct refers to components, such as personal goals, emotions, and agency beliefs that direct, energize, and regulate individuals' behaviors in learning tasks (Reeve, 2012). Figure 1 introduces the motivational concepts applied in this dissertation. In the current dissertation, children's motivational differences are examined from the point of their behaviors and emotions related to the task.

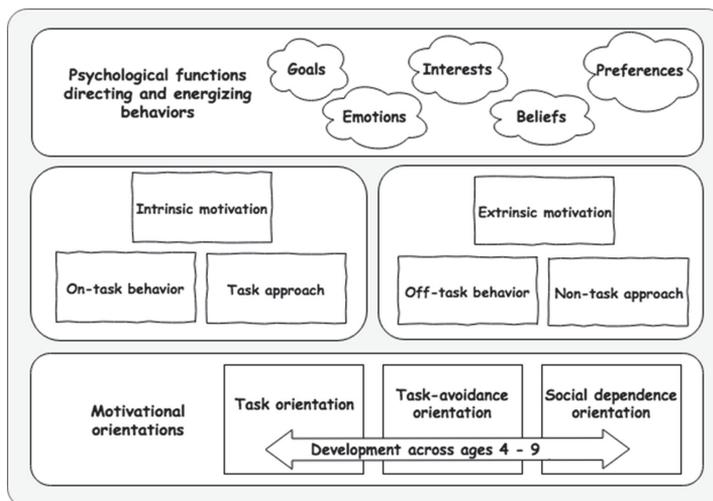


Figure 1. Motivational concepts applied in this dissertation

Numerous theoretical approaches have been outlined to study young children's motivation. These are, for instance, mastery-related cognitions and behaviors (MacTurk, Morgan, & Jennings, 1995; Stipek & Greene, 2001); self-regulation (e.g., Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016; Williford, Vick Whittaker, Vitiello, & Downer, 2013) and its role in effortful control (for a review, see Liew, 2012), executive functions and goal-directed behaviors (Cartwright & Guajardo, 2015); and intrinsic versus extrinsic motivation (Harter, 1981). A number of constructs have been used to characterize the individual differences in children's motivational orientations; these are task involved versus ego involved, mastery versus performance oriented, and task focused versus ability focused (for a review, see Urdan & Maehr, 1995). Despite their differences, all of these accounts reflect a distinction between task-focused and non-task-focused behaviors (for a review, see Brabander & Martens, 2014). Consequently, children who are task focused tend to pursue task-intrinsic goals, such as task-related understanding and applying problem-focused coping strategies where needed (e.g., Elliott & Dweck, 1988; Endler & Parker, 1990) and displaying a self-responsible attitude even if the learning activities may have been chosen and designed by others in the learning context (for a review, see Brabander & Martens, 2014). In contrast, children who are not task focused strive to alleviate negative feelings by using emotion-focused coping strategies (see for example Boekaerts, 1993), self-enhancement, or self-protecting goals (Skaalvik, Valåns, & Sletta, 1994) and avoidance behavior (Brabander & Martens, 2014).

Additionally, young children have been found to have social behaviors or goals as a natural need these goals to perform in learning context they are in. This means that young children's motivation in learning situations is challenged by, for instance, teacher directions and cooperation with peers and also displaying self-regulation (Coolahan, Fantuzzo, Mendez, & McDermott, 2000).

Based on the above distinctions in motivation and the adaptations of children with learning difficulties, a three-part model of motivational orientations (Salonen et al., 1998; Vauras, Salonen, & Kinnunen, 2008; Vauras et al., 2009) is applied in the current dissertation to examine motivational behavior in young children. The three-part model of motivational orientations (task orientation, task-avoidance [initially conceptualized as ego-defensiveness], and social dependence orientation) address children's adaptive focus in socially guided (task, self, or teacher and/or peer) and shared learning situations; their activated reactive functional system (approach or avoidance); cognitive coping strategies and emotional expressions; and quality of cognitive perfor-

mance (for a review, see Lepola, Salonen, Vauras, & Poskiparta, 2004). These orientations can be briefly characterized as follows (cf. Lehtinen, Vauras, Salonen, Olkinuora, & Kinnunen, 1995; Vauras et al., 2009): Task orientation refers to the tendency to accept the challenging aspects of a learning task or activity, and this kind of task-related interpretation is observed as approaching, exploring, and mastering behaviors. In a task orientation, the child's goal in the learning situation is to understand the teacher's instructions and task. In turn, a task-avoidance orientation indicates an increasing psychological and/or social distance between the child, the task at hand, and others. Thus, in this way, the child may attempt to reduce motivational–emotional tension or conflict in the task situation. Substitute behaviors and negative emotions may be observed. In task-avoidance orientation, the main adaptive focus is on the child's self and on altering his or her self-system rather than focusing on the task or seeking support from adults or peers.

The social dependence orientation is characterized as children's sensitivity to social cues, which includes their tendency to exhibit helplessness and seek immediate help and approval from teachers or peers when a challenge appears. Although children attempt the task to some extent, their main adaptive focus in the learning situation is on the teacher and/or significant others, such as a peers guiding them toward the task activity. This is in line with Berhenke et al.'s (2011) report that children in a task situation may be observed as activating toward the task demand while doing other things that are not included in the goal of the task. Furthermore, Berhenke et al. (2011) found that this multitasking behavior was negatively related to persistence in task-focused behavior. Because the social context is a highly necessary factor in assessing children's motivational behavior (cf. "co-agency" in Salmela-Aro, 2009; cf. Sameroff, 2009), the social dependence orientation as evaluated in the current dissertation was carried out by asking the teacher, for example, if the children were imitating peers' activities and/or immediately asking help from a neighbor peer and/or the teacher while doing the task (e.g. Laitinen, Lepola, & Vauras, 2017).

Thus, in addition to the psychological theories of motivational–emotional tensions and conflicts (Lewin, 1935), the triadic model of orientation and coping behaviors is based on the social psychological communication theories of co-orientation (cf. Lepola, 2000; Newcomb, 1953). Previously, for instance, Downer et al. (2010) pointed to the importance of significant others for young children's development; here, early childhood skills develop within learning activity interactions, including interactions with adults and peers. Particularly, peer relations play a critical role in learning development

and have been associated in early childhood with various aspects of developmental outcomes, such as academic achievement and achievement behavior (for a review, see Gifford-Smith & Brownell, 2003) and language acquisition (e.g., Schechter & Bye, 2007).

Furthermore, this triadic model of orientation and coping behaviors intrinsically captures motivated behaviors that are grounded in the individual's basic needs to feel competent, self-determined, or autonomous, which are related to others in the social context ("self-determination theory": Deci & Ryan, 1985). These three basic needs are strongly associated with learning environments; although environments that satisfy these needs are assumed to promote intrinsic motivation, environments that thwart them are assumed to impair intrinsic motivation and self-regulation (e.g., Ryan & Deci, 2000). It follows that social or learning environments may play a significant role in children's motivational-developmental behaviors. For example, Pakarinen et al. (2011) studied classroom quality in kindergarteners' motivational behavior and found that the more instructional support classroom teachers provided (e.g., quality feedback and helping children develop and model their understanding and thinking processes), the less task-avoidant behaviors children showed. In addition, Pakarinen et al. (2010) confirmed that when kindergarten teachers applied high-quality classroom organization (e.g., setting clear rules and providing inherently interesting tasks), children tended to display more task-specific interest than in classes with lower classroom organization. Additionally, children's self-reported task-specific interests have been found to predict high levels of phonological awareness (Pakarinen et al., 2010).

Research using these definitions of motivation has found differences in behaviors toward task situations emerging in kindergarten. For instance, using teacher ratings to examine the development of task-focused and task-avoidant behaviors in 6–7-year-old children, Onatsu-Arvilommi and Nurmi (2000) found that task-avoidant behaviors measured at the beginning of the first school year had unique impacts on the same constructs measured at the end of that first school year. Children who displayed task avoidance in classroom situations in October showed negative affect, more task-irrelevant and helplessness behaviors, and greater lack of persistence in April. Overall, individual differences in the measured motivational dimensions (task-focused and task-avoidant behaviors) were very stable during the first school year. Zhang, Nurmi, Kiuru, Lerkkanen, and Aunola (2011) confirmed the stability of these task-avoidance behaviors from kindergarten to second grade, suggesting the appropriateness and validity of teacher ratings for the assessment of children's motivation.

In addition to task-focused and non-task-focused behaviors, Berhenke et al. (2011) used a puzzle task and trivia game to examine children's emotional expressions and task-focused behaviors, including the social dimension of motivation; they described this social dimension by multitasking, where the children's behavioral focus was on the task at hand, but at the same time, the children approaching significant others (i.e., teacher) played a crucial role in the children's behaviors in these learning situations. Overall, Berhenke et al. (2011) concluded that direct observation was a useful and valid tool for measuring motivation in young head start graduates (kindergartners). Regarding the motivational behaviors among kindergartners, Viljaranta et al. (2016) identified six groups of children from kindergarten to second grade with different profiles of reading skills, task-specific interests, and self-perceived ability. The findings showed that different motivational behaviors among young children are affected by a conglomeration of cognitive, social, and emotional components.

Previous research findings have confirmed that learning-related motivation tends to stabilize during children's first two school years (cf. Gottfried, Fleming, & Gottfried, 2001; Lepola, Vauras, & Poskiparta, 2002). Considerable intraindividual stability have been found during the first grade (Onatsu-Arviolommi & Nurmi, 2000). This developmental pattern reflecting the stable differences model (Northrop, 2017) may also indicate the stability of socioemotional vulnerability in learning tasks, which, in turn, undermine children's potential to learn (Vauras et al., 2009). To study young children's motivation, it is important to understand the formation of individual differences in the children's learning-related behaviors and how providing guidance and scaffolding can support the children's task-oriented motivation. Adaptive and maladaptive motivations may have their developmental basis already in pre-school and kindergarten situations. In addition, studies have emphasized the importance of breaking any negative cumulative developmental cycle before it leads to accumulated learning difficulties (Onatsu-Arviolommi & Nurmi, 2000).

1.2 Children's motivational orientations and competence in reading

Current research on the behavioral, emotional, and cognitive dimensions of children's engagement and coping has underscored the impact of motivation on learning skills, such as reading achievement (for a review, see Conradi, Jang, & McKenna, 2014). Evidence exists on the roles of motivational orien-

tations in learning to read and success in the comprehension of the text (Lepola, Niemi, et al., 2005; Vauras et al., 2009). For example, task-oriented behavior plays an important role in the development of pre-reading skills as reading precursors and language comprehension (Lepola, Lynch, Kiuru, Laakkonen, & Niemi, 2016; Lepola, Niemi, et al., 2005), whereas low pre-reading skills have been associated with higher social dependence and lower task orientation (Lepola, 2004). In addition, Viljaranta et al. (2016) and Lerkkanen et al. (2010) found that children with better reading skills showed more interest in reading-related activities, while children with low reading skills exhibited little interest in reading-related activities.

Reading comprehension is known to have two components: word decoding, or code-related reading precursors, and language comprehension skills (e.g., Dufva, Niemi, & Voeten, 2001; Hoover & Gough, 1990; NICHD Early Child Care Research Network, 2005; Storch & Whitehurst, 2002), both of which are prerequisites for good reading comprehension, which is the ultimate goal of literacy education. Although code-related precursors such as phonological awareness and letter identification enable young readers to decode individual words, language comprehension skills such as vocabulary (Perfetti & Stafura, 2014; Silvén, Poskiparta, Niemi, & Voeten, 2007) and listening comprehension (see Lepola et al., 2016) lay the foundation for constructing the meaning from texts. Therefore, reading comprehension can be said to belong to the more general class of the constructs associated with the important interrelations between reading precursors and language comprehension skills (Kendeou, van den Broek, White, & Lynch, 2009; Storch & Whitehurst, 2002).

Going further with this concept, vocabulary knowledge helps children comprehend texts more directly (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Verhoeven, Van Leeuwe, & Vermeer, 2011) and is known to be crucial for listening and reading comprehension (Florit, Roch, & Levorato, 2014; Torppa et al., 2007). Among 4-year-olds, the skill of defining words has also been associated with concurrent semantic and phonological skills (Silvén & Rubinov, 2010). Additionally, phonological awareness is strongly related to the acquisition of word-decoding skills, enabling children to segment the sounds of words and hence master letter–sound correspondences (e.g., Ehri et al., 2001; Perfetti, 1994). At kindergarten ages, phonological awareness has been shown to be associated with both concurrent and subsequent listening comprehension (Dufva et al., 2001; Sénéchal, Ouellette, & Rodney, 2006). Developmentally, studies have identified individual differences in foundational vocabulary from age 1 onwards, as well as in language comprehension skills in 3–5-year-olds among prospective good, average, and

poor readers (Lyytinen et al., 2004; Silvén, Poskiparta, & Niemi, 2004; Torppa et al., 2007).

Furthermore, these pre-reading components (the simple view of reading; SVR) have been extended to encompass associated psychological factors, such as motivation (e.g., Lepola, 2004) and children's subjective valuation of reading (e.g., Cartwright, Marshall, & Wray, 2016), along with characteristics of the learning environment and the home and school cultures. Both the SVR and the related component model of reading have been tested with children of various ages (Vellutino, Tunmer, Jaccard, & Chen 2007) and across different languages (Florit & Cain, 2011).

According to Lepola et al. (2016), individual differences in reading comprehension emerge relatively early (at around 5–6 years old) and relate to the two components of the SVR (Gough & Tunmer, 1986; Tunmer & Chapman, 2012) and to motivation (Lepola et al., 2016). It follows that children's reading comprehension can be associated with behavioral and affective factors (Aaron, Joshi, Gooden, & Bentum, 2008; Cartwright et al., 2016; Georgiou, Manolitsis, Zhang, Parrila, & Nurmi, 2013; Guthrie & Klauda, 2014).

In the present work the association between children's comprehension of verbal instructions (linguistic component of SVR) and motivational orientations are studied both concurrently and longitudinally. In addition, children's on-task, undifferentiated, and off-task motivational behaviors are examined in the context of supporting children's listening comprehension (Bunny Story intervention). Finally, children's motivation and task-specific interest are investigated as a function of pre-reading profiles based on Simple view of Reading model.

Motivational tendencies and language skills

In addition to children's situation-specific interpretations (e.g., goals, emotions, and beliefs), language comprehension skills can influence the formation of motivational orientation (Lepola et al., 2016; cf. Stipek, 1996). In fact, children's ability to understand their teacher's instructions and task-specific verbal guidance may influence the way the children approach the situation, for instance, in crafts and play-like situations in day-care centers.

According to Lepola (2004), early differences in preschool children's oral language comprehension and reading precursors are linked to different motivational–developmental tendencies in kindergarten and in the first grade. Kindergarten-aged children's tendency to approach, explore, and master challenging aspects of a learning task seems to enhance reading precursor skills

in the first grade (e.g., Lepola, Poskiparta, et al., 2005; Manolitsis, Georgiou, Stephenson, & Parrila, 2009). Children who display task-avoidance behaviors seem to be at risk for school failure because this maladaptive motivation has been found to relate to poor pre-reading skills and regressive reading trajectories (e.g., Salonen, Lepola, & Niemi, 1998; Zhang et al., 2011). Here, task-avoidance orientation refers to children's inability to initiate and sustain attention, as well as negative task- and self-related emotions. In turn, these behaviors have been found to interfere with children's ability to process and benefit from a teacher's verbal instructions (Vauras et al., 2009). Strong pre-reading skills at 5 years old are a known predictor of low task avoidant behavior (Hirvonen, Torppa, Nurmi, Eklund, & Ahonen, 2016), and according to Viljaranta et al. (2016), children's low task-approach motivational behaviors are associated with a risk of reading difficulties starting in kindergarten. In addition, children with better reading comprehension not only apply prior knowledge of a topic to locate, understand, and use information effectively (Lehtinen et al., 1995), but they also approach and master tasks, show self-efficacy, and pursue success (Ryan & Deci, 2009; Schunk & Zimmerman, 2007).

It seems, then, that every motivational tendency may have a different and unique association with language skills from an early age. Thus, it is worth understanding how young children approach learning opportunities, where the eventual development of language skills exists.

Motivational tendencies and task-specific interest—the person-centered approach

Although research on the development of motivation has considered both situation- and person-dependent factors, the focus has increasingly shifted to individual differences (cf. Heckhausen & Heckhausen, 2010) by using person-centered approaches (e.g., Patrick, Mantzicopoulos, Samarapungavan, & French, 2008). In addition to motivational tendencies, related concepts such as interest (Schiefele, 1996) and task values (Wigfield & Eccles, 2000) have been applied to examine and understand children's motivation. For instance, Viljaranta et al. (2016) used a person-centered approach to study the individual differences among kindergarten through second grade children and found six groups of children with different task-specific interests, self-perceived abilities, and reading skills. In particular, task-specific interest was identified as a positively charged cognitive and affective experience that directs attention and focuses it on the activity or task at hand. In other words, the children want to engage in the activity (“liking a particular activity”) and enjoy doing so (Rheinberg, 2010). Among school-age children, task-specific

interest (Aunola, Leskinen, & Nurmi, 2006) has been shown to stabilize soon after the first two grades. Although interest may influence the children's ways of approaching learning tasks (Schiefele, 1996), the relative importance of children's individual motivational tendencies and task-specific interest is not as well understood in younger children (before kindergarten). Task-specific interest is, in fact, shown to be associated with language comprehension between 3 and 5 years old (Martin, Ryan, & Brooks-Gunn, 2013), word-reading skills later on from kindergarten to second grade (Viljaranta et al., 2016), and reading comprehension among first and second graders (Cartwright et al., 2016).

In the present work, the developmental associations between motivation, language skills, and task-specific interest were investigated through a person-centered approach among 4- to 6-year-old children by identifying different profile groups. The identification of such profile groups and examination of the explanations for their differences may provide a deeper understanding of the mechanisms that associate young children's motivational tendencies and language skills development (e.g., Mägi, Torppa, Lerkkanen, Poikkeus, Rasku-Puttonen, & Nurmi, 2013).

1.3 The advantage of multiple perspectives on motivation

Given the elusive nature of motivation, especially among young children, multiple perspectives are needed to capture its role in development and learning (Brunstein & Heckhausen, 2010). Different raters can provide unique and valid perspectives on motivation (e.g., Coddington & Guthrie, 2009). In the context of early education and care, teachers', parents', and experimenters' assessments, as well as self-ratings, are all relevant, and most studies on children's motivational behaviors have adopted one or more of these perspectives. Studies focusing on the consistency of these different perspectives and ratings have indicated that children will show measurable differences on assessments of motivation (Brunstein & Heckhausen, 2010), and this may predict achievement later on. Nevertheless, these different perspectives may inform the extent to which classroom practices or literacy practices meet a child's needs (cf. Berhenke, 2013). The present study employs a longitudinal format with multiple perspectives on 4–6-year-old children's learning-related motivation.

Teacher ratings based on adult-guided learning situations in day-care

According to Zhang et al. (2011), a teacher's report is a valid, reliable, and

developmentally appropriate measure of children's motivation in learning situations. Teacher ratings may focus on children's feelings and actual behaviors and reflect the perceived motivation of the children (MacTurk et al., 1995; Salonen, Lepola, & Niemi, 1998). Regarding the validity of teacher ratings, teachers can be seen as expert evaluators based on their thorough experience with each child (Lepola, 2004).

Self-rating: the children as informants

Self-reporting as a method relies on the approach of asking the person directly and is typically employed before or after a task or learning activity. Self-reports are especially important because they are based on information that is not directly accessible to others. Although young children's self-reported motivation may be biased by the children's tendency to be overoptimistic about their own abilities and affect regarding the task (Boekaerts, 2001; Harter, 1996; Stipek & Greene, 2001), this method is commonly used because it enables children to share what they think about a given activity (Karabenick et al., 2007); this helps to improve the understanding of how motivation develops in the midst of activity and how it can be supported in early education and care settings.

Parent rating versus teacher rating

Although ratings by children have been criticized on the grounds of children's weak self-evaluation abilities, ratings by adults may be considered less biased in this regard. For instance, children's interest in literacy is known to be significantly related to teacher ratings of children's behaviors and adaptation (Baroody & Dobbs-Oates, 2011). Similarly, parents' ratings of their preschool children's behavior tend to align with the children's achievement motivation (Wigfield et al., 2006) and are also significantly correlated with their ratings of children's literacy interest ($r = 0.39$; Baroody & Dobbs-Oates, 2011). Although teachers have opportunities to assess how children behave motivationally in structured and guided learning situations and how they interact with peers, parents are the most familiar with their children's behaviors and skills across time and at home. In previous studies parents have reported children's book events (i.e. frequency of shared reading, children's approach to book reading and looking at books) (Sénéchal, LeFevre, Hudson, & Lawson, 1996) at home context and found the association with children's academic performance.

Experimenters' ratings: observing children's motivation in day-care

Behavior-based ratings such as observations have also been found to be valid

means of assessing motivation in young children (Berhenke et al., 2011) and their preferences for challenging or non-challenging tasks at the preschool age (e.g., Salonen, Lepola, et al., 1998; Smiley & Dweck, 1994). Experimenters' observing of task-focused behaviors during a learning task may be important for early educators to be able to recognize the differing behaviors of children show in a learning task (Berhenke et al., 2011). Berhenke et al. (2011) found an association between experimenters' observed motivational behaviors and learning-related activities as reported by teachers in a day-care setting. It seems likely that in combination with teacher rated general motivational orientations, observing children's motivation across ages may help to demonstrate the different motivational behavior of children, who approach a learning task in a more on-task-behavior versus a more off-task-behavior (or multitasking).

In summary, it is important to gather information (cf. Berhenke et al., 2011) from multiple sources to achieve a more complete picture of the roles of situational and personal factors in motivation. Every significant rater may have a different but unique and important view of the children's motivation: teachers' assessments are based on extended time and different situations, the experimenters' contribute by observing, and parents' have a unique familiarity with their children's behaviors and skills across time and situations. Self-reports, in turn, are based on the meanings of a task or situation for a child that cannot be indirectly evaluated.

1.4 Young children's motivation in Finnish day-care context

The present study was conducted in Finland, where compulsory education begins when a child turns 7 years old. Kindergarten-age children (6-year-olds) are entitled to preprimary education for 1 year before embarking on 9 years of comprehensive school. The children are taught letters before first grade by the environment that supports the development of their language skills through speaking, listening, discussions, and shared reading activities, encouraging children's interest in letters and phonemes through play-centered activities (see National Board of Education, 2010, 2014). This means that Finnish preschool and kindergarten learning environments and practices are mostly child centered (Lerkkanen et al., 2012; National Board of Education, 2010, 2014). Opportunities to play and make one's own choices and to engage in cooperative activities with one's peer group are important motivating practices (Deci & Ryan, 2000; Lerkkanen et al., 2012), which in turn enhances academic skills (Morgan & Fuchs, 2007).

Child-centered practices are assumed to be beneficial for learning—for example, the self-determination theory (Deci & Ryan, 2000) proposes that when teachers are responsive to children's needs, take account of their interests, and promote their autonomy in the classroom, they foster children's motivation to learn, which in turn results better learning outcomes. Stipek, Feiler, Daniels, and Millburn (1995) showed that children in child-centered preschools and kindergarten programs rate their abilities higher, have a greater preference for taking on challenges, take more pride in their successes, are less dependent on adults, and exhibit lower anxiety compared with students in didactic programs that were academically focused. The original studies in the present dissertation investigated children's early motivational orientations in adult-guided crafts and activity situations in a day-care center. In particular, we looked at the extent to which children showed task-oriented behaviors in mastering and approaching the challenging aspects of a learning task, the extent to which children displayed task-avoidant behaviors, and the extent to which children's behaviors reflected social dependence.

Supporting children's cognitive-motivational development as early as possible is critical (Finnish National Board of Education, 2016); any delays can be reliably identified as early as age 4 (e.g., Lepola, Lynch, Laakkonen, Silvén, & Niemi, 2012) and early preventive support has proven effective (Karoly, Kilburn, & Cannon, 2005; Sarama, Lange, Clements, & Wolfe, 2012). Study III in the current dissertation explored early cognitive-motivational prevention among 4-year-old children whose preschool teachers implemented interventions to support the children's listening comprehension skills. These skills are crucial for everyday interactions and lay the foundation for future reading skills (Dufva et al., 2001; Kim & Phillips, 2016; Lepola et al., 2016; Storch & Whitehurst, 2002; Torppa et al., 2016). Intervention studies have confirmed the value of combined training in both reading comprehension and motivation as opposed to addressing either one alone (Guthrie, McRae, & Klauda, 2007; Lehtinen et al., 1995).

Young children's motivation in a day-care setting was chosen as the research topic because early childhood education plays an important role in children's cognitive-motivational development. To understand how motivation manifests and associates with literacy and comprehension skills in children's early years, there is a need to study the learning situations in children's everyday lives. In addition, these factors and contexts highlight the relevance of early education interventions (Study III).

2 Aims and structure of the dissertation

2.1 Main aims

The general aim of the current dissertation was first to theoretically study young children's motivational orientations and associations with language skills before entering school. Methodologically, the second general aim was to develop and validate rating scales that could capture and analyze the development of motivational orientations. Third, empirically the intention was to identify the developmental associations between preschoolers' motivational orientations, pre-reading skills, and a child's task-specific interest by using multisource perspectives. On a practical level, the fourth general aim of this dissertation is to explore and promote professional development in early education by identifying children's developmental strengths and the risk factors related to their learning trajectories.

As outlined in the introduction, the theoretical definitions and empirical evaluations emphasize that motivational orientations reflect children's different ways of attuning—motivationally, emotionally, and socially—to a socially guided learning situation (Lehtinen et al., 1995). The present assessment of motivational orientation highlights children's adaptive focus, coping strategies, and emotional expressions, as well as the quality of their cognitive performance (Salonen et al., 1998) in task situations in a day-care center. Each motivational orientation is characterized by the children's distinct motivational behaviors, here focusing on task approach, task avoidance, and social dependence. Traditionally, research on motivational orientation has concentrated on school-age children and short-term changes. For this reason, previous research in this area has not adequately scrutinized the development of early motivational orientations and its role in the formation of language skills. The general and detailed aims of the current dissertation are presented in Figure 2.

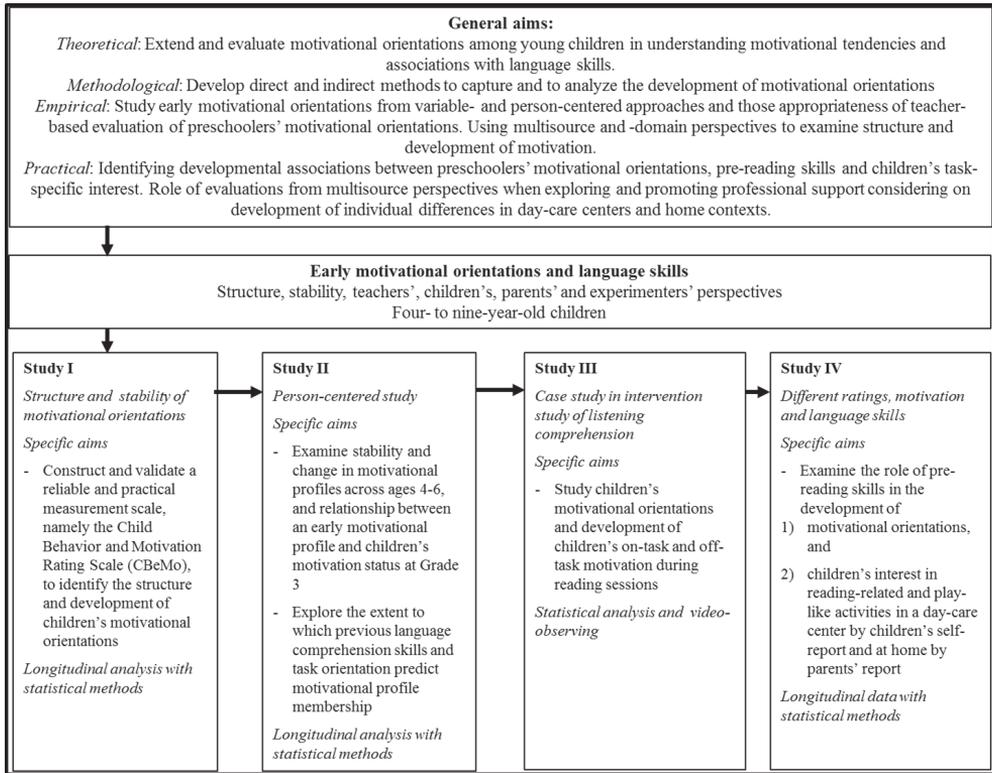


Figure 2. Overview of dissertation aims

Each of the four studies in this dissertation attempts to advance the understanding of children's motivation and language skills. The four studies are interrelated. Study I developed and validated a reliable and practical measurement scales to examine the structure and stability of young children's motivation, that is, how children adapt and cope to and approach crafts and learning activity situations guided by an adult in a day-care center. This approach acknowledges that motivation is at least partly a contextual phenomenon. Study II utilized the scale developed in Study I to identify children's motivational orientation profile groups across ages 4–6, linking motivational profiles at age 6 to the children's subsequent motivational status in Grade 3. Study II also captured the multidomain aspect of children's motivational behaviors in learning tasks by exploring predictive association between motivational orientation profiles and language comprehension skills. Study III deployed the motivational orientation scales in the Bunny Stories intervention study of listening comprehension to explore the development of task orientation and task-avoidance orientation during a 1-year study. Study III also captured the

observation of children's motivational orientations and investigated whether teacher-rated children's motivation could be manifested by the experimenters' observations.

Study IV examined the role of pre-reading skills in children's development of motivational orientations and task-specific interest in reading-related and play-like activities at day-care settings and at home. Teacher ratings, self-reports, and parental reports were used to capture the different perspectives of children's motivation examining. Studies II and IV both used a person-centered approach.

2.2 Research projects, participants, and contexts

Studies I, II, and IV in this dissertation are based on longitudinal data from the Promo research project (led by Dr. Lepola from 2007–2013) following children from preschool to the third grade (Studies I, II, and IV). Study III is based on data from the Bunny Stories intervention research project (Mattinen, Kajamies, Räsänen, Hannula-Sormunen, & Lehtinen, 2014). Short descriptions of these two research projects and their participants are given below.

Promo—The role of cognitive, linguistic, and motivational-contextual factors from age 4 to the third grade (2007–2013)²

The general objective of this longitudinal research project led by Janne Lepola and supported by the Academy of Finland was to examine the developmental relationship between children's narrative comprehension skills, pre-reading abilities, and motivation, as well as to enhance the quality of educational practices to support children's narrative comprehension in day-care centers. The project also utilized both teacher reports and the children's self-reports to understand the formation of children's task-related behaviors and their role in the acquisition of language skills.

Participants. The 16 day-care centers participating in this project represented socioeconomically varied districts from two towns in Southern Finland with 176,000 and 14,500 inhabitants. The sample of this longitudinal study involved 130 typically developing, Finnish-speaking children and their teachers and parents. The number of girls ($n = 68$) and boys ($n = 62$) were about the same. At the beginning of the study, the mean age of the children

2 The Promo research project was supported by Grant No. 118330 from the Academy of Finland.

was 50.5 months (range = 45–56 months). The participating 130 children were a subsample of the original sample of 149 children.

Ethical guidelines of the University of Turku were followed in all studies. Informed consent was acquired from the parents or guardians of all children, as well as the permissions from city social services and municipal government or school board. All informed consent forms and data are stored behind closed doors at the Faculty of Education, University of Turku, Finland.

Bunny Stories—program for an intervention study of listening comprehension in early education (2011–2013)³

The research project was led by Aino Mattinen and was based on collaboration between kindergarten teachers, children, and their parents. The main objective of this intervention program was to develop the comprehension skills of young children who had trouble with listening comprehension and to help adults systematically, explicitly, and intensively support young children's comprehension skills in day-care and home settings. The role of a child's task-oriented motivation and interest in listening to stories was also stressed as key to active participation and growth in comprehension (for more details, see Mattinen, Kajamies, Räsänen, Hannula-Sormunen, & Lehtinen, 2014).

Participants. The intervention sample consisted of 22 4–5-year-old children from eight day-care centers in a town in Southern Finland. At the beginning of the study, the mean age of the children was 50 months (range = 48–52 months). The number of preschool teachers was 10, and each teacher conducted an intervention with two children (approx. one teacher had one dyad). The participating 22 children and 10 preschool teachers was a subsample of the target group of 170 children and 21 preschool teachers. The children were selected for the intervention based on their preschool teachers' evaluations that they would benefit from an intervention study on listening comprehension. Based on the careful testing of vocabulary, morphology, and comprehension skills, the children were selected for the intervention groups (Mattinen et al., 2014). In the intervention group, one preschool teacher and two children with difficulties in listening comprehension participated in shared story reading sessions. The program contained 20 reading sessions that were carried out once a week and that were video-recorded.

3 The Bunny Stories research project was funded by Grant No. C224 from Finland's Slot Machine Association, awarded to the Niilo Mäki Institute.

The participants of this study included children, teachers, and parents. The day-care directors, school principals, and kindergarten and classroom teachers all signed collaboration contracts. The guardians gave their written consent for their children's participation, the videotaping, and the use of the videos for scientific research. The intervention teachers agreed to videotape their intervention sessions. To preserve anonymity, the names of all participants were changed. In all respects, ethical codes were followed according to the guidelines for scientific research of the University of Turku's Ethics Committee and the Academy of Finland.

2.3 Assessment of motivational orientations and language skills

One aim of the current dissertation is to develop and validate a measurement scale for researchers and early education professionals to screen out and examine the motivational orientations of 4-, 5- and 6-year-old children and to study the associations between children's motivational orientations, pre-academic skills, and their actual behaviors by using the Bunny Story reading intervention. Therefore, in the next section, a detailed description of the contents of the scales being used in the present dissertation is presented. The scales are briefly described in respect to their original versions and reliability to present the internal consistency (Cronbach's alphas) and stability of the scores that the scale produces over time (β -values; Kline, 2000). A summary of the measurements, time points, and sample sizes is presented in Table 1.

Measurement scale	4-year-olds autumn, preschool	5-year-olds autumn, kindergarten	6-year-olds autumn, kindergarten	3 rd graders spring
Promo-project				
<i>Motivational orientations scale for children</i> Teachers' evaluations	n=130	n=130	n=130	n=82
<i>Signs of attention problems</i> Teachers' evaluations	n=130	n=130	n=130	
<i>Oral language comprehension skills</i> Neuropsychological Assessment (NEPSY)- Comprehension of instruction test Listening comprehension Vocabulary knowledge	n=130 n=130 n=130	n=130 n=130 n=130	n=130 n=130 n=130	
<i>Reading precursor skills</i> Phonological awareness Letter knowledge	n=130 n=130	n=130 n=130	n=130 n=130	
<i>Child's interest in day-care activities, child's self-report</i> Reading-related Play-like	n=130 n=130		n=130 n=130	
<i>Child's interest in day-care activities, parents' report</i> Reading-related Play-like	n=90 n=90		n=90 n=90	
Bunny Stories –project				
	autumn, day-care	4-5-year-olds winter, day-care	spring, day-care	
<i>Motivational orientations scale for children</i> Teachers' evaluations	n=22	n=22	n=22	

Table 1. Summary of the measurement scales, time points, and sample sizes used in the dissertation

Preschool and kindergarten teacher evaluations of children's motivational orientations.

The Child Behavior and Motivation Rating scale (10 items; CBeMo) validated in Study I was based on the original Child Behavior and Motivation Rating scale (27 items); the CBeMo was used in adult-guided crafts and activity situations in a day-care center by Lepola, Salonen, and Mattinen (2007). Thus, the CBeMo is a consolidated measure used by kindergarten and preschool teachers to assess motivational behaviors in early educational settings (Study I). The teachers' evaluations were used to study the children's generalized engagement, that is, the ways the children approached and mastered a task that was guided by a teacher. Those teachers who were able to observe a child's motivational behavior for a long time and within different situations seemed to be the best sources for evaluating these generalized behavior tendencies. The theoretical and empirical work for the scale being used can be found in Salonen, Lehtinen, et al. (1998) and Vauras, Salonen, Lehtinen, and Kinnunen (2009).

The original CBeMo scale included 27 items to assess children's task-approach, task-avoidance, and social dependence type of behaviors. A number of original items were excluded in the updated CBeMo to evaluate the stability of the obtained three-factor structure across three measurement

waves. Ten of the 27 items were chosen based on their better representation of children's motivational orientations across the ages of 4, 5, and 6 (cf. Study I).

Three out of the 10 items measured children's task orientation, that is, the children's tendency to approach, explore, and master the learning task (e.g., "wanting to continue the tasks," "showing a desire to do more challenging things," and "ponders on alternatives and plans").

- a) Three items measured the children's task-avoidance orientation. Task-avoidance orientation refers to a child's tendency to reduce motivational–emotional conflict or tension through avoidance behavior (e.g., "complaining, whimpering, and moaning about, for example, crafts equipment," "showing strong disappointment toward one's own product," and "using materials for things other than the task at hand").
- b) Four items tapped into the children's social dependence orientation. Thus, these items aimed to assess the child's tendency to immediately seek the teacher's or peers' help or approval and the child's tendency to please the teacher or to show helplessness (e.g., "imitating peers' activity," "clinging to peers/a peer and/or to an adult when transferring to a new situation," and "immediately asking for help from a neighboring peer").

The CBeMo rating was a 7-point Likert scale that showed how frequently the participating child displayed the target behavior in question in the day-care center: 1 = "the behavior does not occur at all," 2 = "the behavior occurs very rare, only once or twice during last month," 3 = "the behavior happened only occasionally, rather atypical," 4 = "the behavior happens for about half of the time, typical to some extent," 5 = "typical, happens frequently," 6 = "very typical, for most of the time," and 7 = "the behavior occurs most of the time or always." In Study III, task orientation and task-avoidance orientation and the manifestations of these were used in the story reading context. All three motivational orientations were assessed in Studies I, II, and IV.

The Cronbach's alphas for task orientation at ages 4, 5, and 6 were 0.80, 0.83, and 0.79, respectively; for task-avoidance, the Cronbach's alphas at ages 4, 5, and 6 were 0.82, 0.83, and 0.79, respectively; and for social dependence, the Cronbach's alphas at ages 4, 5, and 6 were 0.66, 0.71, and 0.74, respectively.

Evaluation of children's motivational orientations in the third grade

The participating classroom teachers evaluated the children's motivational

orientations (Study II) in typical third-grade classroom situations by using an age-appropriate motivational orientations questionnaire (Kajamies, Vauras, & Kinnunen, 2010). The questionnaire included 14 items, and six out of the 14 items assessed task-oriented behavior (e.g., “tries to solve problems independently,” “is considering how things fit together,” etc.); four items measured task-avoidant behavior (e.g., “fooling around” and “is retiring and avoiding tasks”); and four items measured socially dependent behaviors (e.g., “tries different ways to get the teacher to give clues”). As before, the rating scale was a 7-point Likert scale: 1 = “not at all,” 2 = “very rare,” 3 = “rather atypical,” 4 = “typical to some extent,” 5 = “typical,” 6 = “very typical,” and 7 = “almost all the time.” The Cronbach’s alphas for task orientation, task-avoidance orientation, and social dependence orientation were 0.95, 0.85, and 0.66, respectively.

Attention problems

The participating preschool and kindergarten teachers evaluated the 4–6-year-old children’s behaviors (in Study 1) for possible signs of attention problems (Aro & Närhi, 2003). Attention problems were evaluated using two items: impulsiveness and restless behaviors in adult-guided tasks (i.e., “a child has difficulties in staying in her or his place [starts easily wandering in the room]”, “a child does not have the patience to wait for her or his turn). Item scores varied between 1 (“the behavior does not occur at all”) to 7 (“the behavior occurs most of the time or always”). The items correlated strongly with each other across ages: at 4 ($r = 0.68$), at 5 ($r = 0.70$), and at 6 ($r = 0.71$). A mean score of the two items were calculated to evaluate the criterion validity of the CBeMo scale by correlating children’s motivational orientations with signs of attention problems (cf. Zhang et al., 2011).

Oral language comprehension skills

Oral language comprehension skills were assessed at the ages of 4, 5, and 6 (in Studies I, II, and IV) using comprehension of instruction, listening comprehension, and vocabulary knowledge tests. In the *comprehension of instruction* test (NEPSY: Korkman, Kirk, & Kemp, 1997; Studies I and II), the task was for children to point to a picture or pictures according to the oral instructions given by the experimenters. The task measures receptive language and also is related to the understanding of relative concepts and grammatical devices (i.e., postpositions, conjunctions, and relative clauses). In Study I, the scores of the comprehension of instruction test was used to evaluate the criterion validity of the CBeMo scale. The Cronbach’s alpha of the test was 0.89. In the *listening comprehension* test developed by Vauras, Mäki, Dufva,

and Hämäläinen (1995; in Study IV), the narrative text was read aloud for the children, and their listening comprehension was evaluated by a retelling task and four prompted questions (see more details in Lepola et al., 2016). The inter-rater reliability for listening comprehension at ages 4, 5, and 6, were .78, .77, and .80, respectively. The children's *vocabulary knowledge* was assessed (in Study IV) using the word definition test (Silvén & Rubinov, 2010), which is an adaptation of the vocabulary test of the Finnish Wechsler Intelligence Scale for Children (WISC—III; Wechsler, 1999) and measures children's word production skills. The Cronbach's alphas for the word definition at ages 4, 5, and 6, were .80, .78, and .78, respectively.

Reading precursors

Reading precursors were assessed (in Study IV) by phonological awareness and letter knowledge tasks. *Phonological awareness* was evaluated by rhyme and alliteration tasks at ages 4 and 5 (Silven, Niemi, & Voeten, 2002), here tapping into the child's ability to recognize words that end or begin with a common sound pattern. At age 6, an initial phoneme recognition test was given (Lerkkanen, Poikkeus, & Ketonen, 2006). The Cronbach's alphas for phonological awareness at ages 4 and 5 were .83 and .82, respectively, and for initial phoneme recognition at age 6, it was .83. The children's *letter knowledge* was assessed by asking the children to name 29 uppercase letters that were shown one at a time (Lerkkanen et al., 2006). The score was the number of correctly named letters. The Cronbach's alphas for letter knowledge at ages 4, 5, and 6 were .80, .78, and .79, respectively.

Child's interest in day-care activities

Children's interest in day-care activities was measured (in Study IV) with an *interview* at ages 4 and 6; here, the Interest Value Scale for Children was used (cf. ARMI test material; Lerkkanen et al., 2008). In the study, the eight items measured the children's activity interest (i.e., "liking" a particular activity) in a day-care center. Of these activities, two items concerned reading-related interest (How much do you like listening to storytelling in a day-care center? How much do you like browsing picture books and children's magazines in a day-care center?). The other two dealt with play-like interest (How much do you like playing with toys in a day-care center? How much do you like playing outdoor games in a day-care center?).

For measurement purposes, while in the day-care center, the children were first shown a picture of an activity and then asked the question. They were then shown a set of schematic pictures of five faces as an evaluative

scale (from *very positive* to *very negative*) and were asked to point to the picture that best described their liking of a particular activity (unhappy face coded as 1 = *I do not like it at all/I dislike those activities*; happy face coded as 5 = *I like it very much/I really enjoy those activities*).

To estimate the child's interest in reading-related and play-like activities, we created an interest preference score by dividing the mean of the items concerning a particular activity (i.e., reading) by the mean of the items concerning all listed activities (cf. Torppa et al., 2007). By contrasting particular activities (i.e., reading related and play like) to other type of activities, we got the children's view on how much they were interested in a particular activity proportional to the amount of interest reported in general. In this way, we reduced the error variance caused by the differing ways of understanding or answering the kinds of multiple-choice questions that have less precise choices, such as interested or very interested. The values were multiplied by 10 for technical reasons.

Child's interest in the home context

For Study IV, parents were asked to evaluate their child's interest in reading-related and play-like activities at home at the ages of 4 and 6 by using the Interest Value scale (see ARMI test material; Lerkkanen et al., 2008). For reading-related activities, the parents were asked "How much does your child like listening to storytelling at home?" and "How much does your child like browsing picture books and children's magazines at home?" For play-like activities, they were asked "How much does your child like playing with toys at home?" and "How much does your child like playing outdoor games at home?" Each item was rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*).

To estimate the child's interest in reading-related and play-like activities at home, we created an interest preference score by dividing the mean of the items concerning a particular activity (i.e., reading) by the mean of the items concerning all listed activities (cf. Torppa et al., 2007).

2.4 Statistical analyses

The summary of the data collection and analysis regarding the original empirical studies and their main aims is presented in this chapter. Below are briefly described the main analysis used in the current dissertation. Various types of analyses were conducted in three different analysis programs: SPSS statistics

22, Mplus version 6.0 and 7.0 (Muthén & Muthén, 1998–2015), and ELAN (Lausberg & Sloetjes, 2009).

Confirmatory factor analysis

For Study I, a confirmatory factor analysis (CFA) was employed to test the number of motivational factors and the specific patterns of loadings for each of the measured motivational orientation variables. In contrast to an exploratory analysis, which was used to test the preliminary structure of the motivational orientation model from children aged 4–6 but did not place strong a priori restrictions on the structure of the model being tested, CFA models provide strong evidence regarding the validity of a set of measured variables, thus allowing for a test among a set of theories about measurement structures (Curran, West, & Finch, 1996; Little, 2013). Therefore, CFA models were used to examine the factor structure and validity of the Motivational Orientation scale at 4, then at 5, then at 6 (Study I) (see more descriptive details in Table 2).

The analyses were performed on the covariance matrices using a maximum likelihood robust estimation method. The most representative models were selected by the following information indices: 1) chi-square, measuring the distance between the sample and fitted covariance matrix; 2) the root mean square error of approximation (RMSEA), measuring the discrepancy per degree of freedom (Steiger, 1990) where values lower than 0.08 indicate an acceptable fit (Little, 2013); 3) the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), indicating how much better the model fits than the independent model, with a cut-off value of 0.90 and above representing an acceptable model and 0.95 and above a very good fit (Little, 2013); and 4) the standardized root mean square residual (SRMR), measuring the average of the standardized residuals between the observed and predicted covariance matrix where a value lower than 0.08 indicates an acceptable fit (Little, 2013).

Because the constructed CFA model is the “measurement model” (see Geiser, 2013) of young children’s motivational orientations, which constitutes the basis for the longitudinal CFA models and all other structural equation models with latent motivation variables, the obtained factor structure of the motivational orientations that were first confirmed were used for the other analyses in the current dissertation.

Longitudinal confirmatory factor analysis and stability testing

To examine the stability of the above-obtained factor structure of early motivational orientations across ages 4, 5, and 6, the longitudinal CFA was used

(Study I). According to Little (2013), the longitudinal CFA was used to answer the following: 1) whether the measurements of each motivational orientation construct are factorially invariant across time points (i.e., ages); 2) how stable the with-in time relations are among the motivational orientation constructs; 3) how stable the relations of the motivational orientation constructs are across ages; and 4) if the constructs' variances of motivation and/or mean levels have changed over time.

In Study I, the aim was to analyze the stability of early motivational orientations (a three-factor model). These would be measured at the ages of 4, 5, and 6. The stability and invariance of each variable (10 items) within each measurement scale (task orientation, task-avoidance, and social dependence orientation) was tested using a longitudinal confirmatory factor analysis with five differently restricted models (cf. Byrne, 2012; Geiser, 2013; Little, 2013). The first model was the *baseline model testing the factorial structure* across ages 4, 5, and 6. For the second model, the *invariance of the factor loadings* was added by fixing the corresponding loadings to be equal at each age. The error autocorrelations were included wherever needed. For the third model, *the factor loading and the intercepts* were fixed to be equal for each age (strong invariance), and for the fourth model, *the factor loading and the error variances* were fixed to be equal for each age (strict invariance). For the fifth model, the *stability of each motivational orientation* was tested, examining how motivational orientation at ages of 5 and 6 can be predicted by previous motivational orientation.

Latent profile and latent transition analysis

In Study II, the validated CBeMo scale (in Study I) was used to examine the distinctive motivational orientation profile groups children showed in adult-guided crafts and activity situations in a day-care center at the ages of 4, 5, and 6. The major advantage of using a person-centered approach in comparison to a variable-oriented framework is that it allows for identifying different profile groups of individuals that are hidden under group means and correlations between variables and for revealing patterns of measures and their associations, and also contribute to understanding of processes of individual development (Bergman, Magnusson, & El-Khoury, 2003). A latent profile analysis (LPA) and latent transition analysis (LTA) were used to explore the profiles of children's motivation. These methods are model-based classification techniques and differ from other traditional person-centered methods, for example, a cluster analysis (e.g. (Muthén, 2001; Nylund, Asparouhov, & Muthén, 2007)). The LPA and LTA have stricter criteria for identifying the amount of profiles based on homogenous groups or latent profiles based on

similarities in the observed variables (Geiser, 2013).

During the analyzing process, the LPA was first used to examine the distinctive motivational orientation profiles groups at each age: 4, 5, and 6. Second, by using the LTA, the probability of the children changing class or group membership across ages was assessed. To examine the extent of the prediction power of previous language comprehension skills and task orientation on later motivational group membership at age 5 and 6, as well as the relation of 6-year-old kindergarten children's motivation to their motivation status in the third grade, a multinomial logistic regression was used by employing the auxiliary variable option (e.g., Bakk & Vermunt, 2016; Vermunt, 2010).

The most representative model at each time point was selected based on the following main criteria: 1) a higher number of the log-likelihood (Log L.) showed a better fit; 2) low values for the Akaike information criterion (AIC), Bayesian information criterion (BIC), and aBIC (sample-size-adjusted BIC) indicated a better fit between the model and the independent model and amount of parameters ("parsimony"; Geiser, 2013); 3) a high value for entropy indicated high precision and reliability of classification (Rost, 2006); 4) a significant result from the parametric bootstrapped likelihood ratio test (BLRT) supported the G-group solution compared with the G-1-group solution and with non-significant the G + 1-solution; and 5) the profile solution had a meaningful theoretical interpretation (Collin & Lanza, 2010; Geiser, 2013).

For Study IV, the LPA was conducted to identify the profiles of pre-reading skills.

Repeated measures ANOVA

After validating the scale for the development of early motivational orientations in Study I, a repeated measures ANOVA was conducted to examine the gender differences in displaying the motivational orientations in adult-guided crafts and activity situations across the ages of 4, 5, and 6. To examine the children's development of task orientation and task-avoidance orientation during the intervention program in Study III, a repeated measures ANOVA was used. For the purposes of Study IV, a repeated measures ANOVA was conducted to examine the development of motivational orientations and child's interest in reading-related and play-like activities as a function of pre-reading trajectories.

ELAN–computer program

In Study III, to further investigate the phenomenon of early motivational orientations, the children’s motivational behaviors in shared reading sessions were scrutinized. The analysis of the children’s motivational behaviors was based on motivation theories (e.g., Deci & Ryan, 2000; Vauras et al., 2009). Analysis categories were developed based on the young children’s motivational behaviors as being task approach, task avoidance (e.g., Salonen et al., 1998) and the children’s multitasking behaviors (e.g., Berhenke et al., 2011) after observing these different motivational dimensions of shared reading sessions for 20 minutes. The descriptions of each category from previous research were used to develop a tool of children’s motivational behaviors, enabling continuous, systematic, detailed, and exact observations of on-task, undifferentiated, and off-task motivational behaviors. This kind of tool was needed to reinforce the teachers’ ratings of the children’s motivational behaviors in guided situations in the day-care center. Videos of four 4–5-year-old children from the Bunny Stories intervention context were used to adapt and further develop the motivational behavior categories in other shared reading sessions in the day-care center.

The categories of motivational behavior and typical behaviors of each category are described in Table 2. More detailed descriptions can be found in the original publication (Study III).

Motivational behavior	Description	Examples of children’s behavior in shared reading sessions
On-task	Child’s approach to listening to the story. Child’s approach to the processes and activities of the story.	Listening and paying attention to story reading Showing a desire to understand the story through the effort of participating in interactions during the reading session Nonverbal task orientation (e.g., expressing positive emotions) Asking about and discussing the story Pondering, elaborating, and linking the events of the story to personal experiences Re/telling, empathizing, and playing out the events of the story
Undifferentiated	Child’s approach to listening, processing, and activating the story while multitasking by doing other things at the same time.	Lacking a clear goal of behavior Multitasking during shared reading (e.g., listening to the story while rolling the hem of a shirt, with tasks that are not relevant to the events of the story; thus indicating less on-task orientation) Showing neither dominative on-task or off-task behavior
Off-task	Child’s approach away from the listening and processing of the story.	Manipulating and withdrawing Participating in discussion that is not linked to the events of the story Using materials other than those for the task at the hand and/or engaging in substitute activities with a peer

Table 2. The categories of motivational behavior with examples (in Study III) (Laitinen, Mattinen, Kajamies, Vauras, & Lepola, 2013)

All of the selected four children's verbal and nonverbal behaviors, as well as their activities in the shared reading sessions, were systematically analyzed from the videos using the professional computer program *ELAN* (Lausberg & Sloetjes, 2009). Using the developed categories, on-task, undifferentiated, and off-task behaviors were observed developmentally across the intervention, and the typical expressions of motivational behavior were coded. Codes were assigned according to the dominating motivational behavior observed. An example is demonstrated in Figure 3, where codes are assigned according to the dominating motivational behavior observed. Here, a child who is sitting is shown, and her motivational behavior was coded as on-task because she was shown working toward the task and discussing the story. At the same time, the observed child's pair was shown to have dominantly off-task motivational behavior because this child was approaching and talking about Blu-Tack on the wall, which had nothing to do with the story. Following this episode in the shared reading sessions, the pair reached the solution of the story event, and then, it the experimenters assigned a different on-task behavior. Thus, one motivational behavior category was coded until there was a reason to assign another.

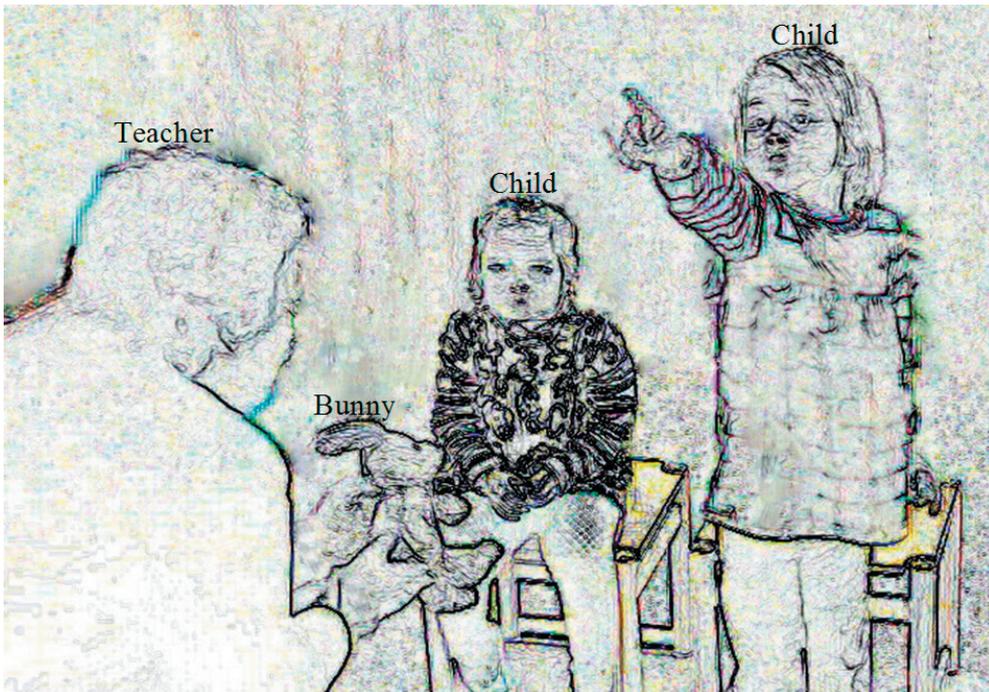


Figure 3. Shared reading situation in the listening comprehension intervention at the day-care center

For consistency of the used codes, two observers analyzed the videos independently and their analyses were compared; there was no case of statistically significant differences [$\chi^2(2) = 0.64$, $p = 0.73$]. The agreement for on-task behavior was 88%, that for undifferentiated behavior was 87%, and that for off-task behavior was 81%. Agreement was reached through discussion of observers in the remaining codes and motivational behaviors. General developmental views and different kinds of developmental profiles for the observed children's motivational behaviors were shown.

3 An overview of the empirical studies

The current dissertation consists of four longitudinal empirical studies that focus on the development of early motivational orientations and associations with language skills in young children. Here, Study I's importance was in developing and validating a reliable and practical measurement scale to identify the structure and development of children's motivational orientations across the ages of 4, 5, and 6. Study II elaborated on the motivational orientations by a person-centered approach and identified motivation at the individual level. Study III demonstrated the teacher-rated development of task orientation and task-avoidance orientation alongside the observed motivational behaviors. Much like all Studies, particularly Study IV extended both the multisource and multidomain perspectives to motivational orientations, language skills and task-specific interests.

Study I

Lepola, J., Laitinen, S., & Kajamies, A. (2013). Pienten lasten motivaation rakenne ja pysyvyys [Structure and stability of motivation among young children], *Psykologia*, 48(4), 256-273. [with English summary, p. 330].

There has been a long tradition of researching the development of motivation and cognitive-emotional factors (for a review, see Heckhausen, 1982). In recent years, an increased focus has been placed on understanding the development of a child's early years, but little is known about the structure, stability, and overall phenomenon of motivation before a child enters school (Berhenke et al., 2011). However, motivation among 6-year-olds has found to be associated with learning to read (Lepola, Poskiparta, et al., 2005), emotional vulnerability (Poskiparta et al., 2003), and math and reading comprehension skills in school years (Lepola, Niemi, et al., 2005; Onatsu-Arviolommi & Nurmi, 2000). Most developmental studies on motivational orientations have had a strong focus on evaluating and developing measurement scales of school-aged children's motivation (e.g., Järvenoja & Järvelä, 2005; Vauras et al., 2009; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2011).

Therefore, the purpose of this longitudinal study was to construct and validate a reliable and practical measurement scale of children's motivational orientations, namely the CBeMo. Preschool and kindergarten teachers rated a total of 130 children's motivation at the age of 4, 5, and 6 years (in the beginning, mean age 4 years and 2½ months). Teacher ratings were used to study the ways in which the child might be motivationally, emotionally, and socially tuned to a socially guided (i.e., teacher) achievement setting. Consequently, the theoretically based structure of motivational orientations (Salonen et al., 1998) among young children and the stability of the obtained factor structure across the ages of 4, 5, and 6 were evaluated.

The findings of the confirmatory factor analysis supported a three-factor model—task orientation, task-avoidance orientation, and social dependence orientation factors—that best fit the data best and described motivation among the ages of 4, 5, and 6. A criterion validity of the CBeMo scale was tested by correlating the children's mean motivational orientation scores with signs of attention problems and comprehension of instruction skills. The strongest linearity association was between a task-avoidance orientation and attention problems. Task orientation was significantly associated with comprehension of instructions skills at the ages of 4, 5, and 6, and a social dependence orientation was associated with the comprehension of instruction skills at the age of 6.

The longitudinal CFA indicated a sufficient measurement invariance of the resultant model across the three waves. In preschool and kindergarten, task orientation assesses a child's tendency to approach, explore, and master the learning task, task-avoidance assesses a child's tendency to reduce motivational–emotional conflict or tension through avoidance behavior, and social dependence orientation assesses a child's tendency to immediately seek the teacher's or peers' help or approval and please the teacher or to show helplessness (see more descriptive details in Table 3). The task orientation and task-avoidance orientations showed moderate stability for 4–6-year-olds.

Finally, gender differences in motivational orientations were analyzed. The results revealed that boys were rated as displaying significantly less task-oriented behaviors than girls in adult-guided crafts and activity situations in a day-care center.

Variable	Age 4		Age 5		Age 6	
	M	SD	M	SD	M	SD
Task orientation						
Wants to continue the tasks (e.g., asks if he or she can do more)	3.57	1.64	3.84	1.69	3.54	1.71
Shows desire to do more challenging things (e.g., playing games, asking to do LEGO-building, and doing more difficult puzzles) ¹	3.39	1.55	3.52	1.71	3.45	1.89
Ponders alternatives and plans related to what he or she does (e.g., “Now I’ll do this; oh no, I have to do this first.”)	3.78	1.64	4.04	1.47	4.34	1.79
Task-avoidance orientation						
Complains, whimpers, and moans about things such as toys and equipment for crafts (e.g., “Oh no, stupid pencils/toys.”) ²	2.27	1.56	2.17	1.57	2.16	1.53
Shows strong disappointment in her or his own product (e.g., “Nothing came out of it”; “It’s a failure.”)	2.25	1.53	2.18	1.46	2.02	1.28
Uses materials for things other than the task at hand (e.g., rolls the pencils/chalk on the table or floor or draws on her or his palm)	2.32	1.51	2.03	1.27	2.21	1.62
Social dependence orientation						
Imitates the activities of peers (e.g., makes a drawing that is similar and has the same colours)	3.05	1.54	2.92	1.43	2.80	1.50
Clings to peers or a peer when transferring to new situations	2.92	1.64	2.65	1.40	2.63	1.72
Clings to an adult when transferring to new situations	2.78	1.55	2.35	1.40	2.16	1.35
Asks immediately for help from a neighbouring peer when doing crafts tasks	2.01	0.94	2.09	1.00	2.14	1.28

¹ Added “writing a letter/story reading” as examples for 6-year-olds.

² Added “task” as an example for 6-year-olds.

Table 3. The means and standard deviations of Child Behavior and Motivation Rating Scale (CBeMo) at ages 4, 5, and 6

Study II

Laitinen, S., Lepola, J., & Vauras, M. (2017). Early motivational orientation profiles and language comprehension skills: From preschool to grade 3. *Learning and Individual Differences*, 53(7), 69-78.

According to several scholars (e.g., Hulleman et al., 2010; Lepola, 2004; Nurmi & Aunola, 2005), motivational factors already are differentiated among younger, particularly among older, elementary school children. Although one of the most salient developmental tasks of early educators and parents is to support each children’s task-focused behavior (e.g., Viljaranta et al., 2016), it warrants investigating whether individual differences of motivational orientation tendencies can be found in early ages.

Despite a relatively high amount of studies concerning motivational orientation, the longitudinal studies that focus on before-school ages are lacking, as well as studies examining the relation between motivational orientations and cognitive skills using an adopted variable-oriented approach.

Therefore, the first aim of this study was to identify the motivational profile groups of children who displayed similar motivational orientation tendencies in adult-guided activity situations in a day-care center. A longitudinal study enabled the examination of the stability and change of children's belonging to a particular motivational profile group, here specifically looking at ages 4–6. Second, the purpose was to study the role of language comprehension and task orientation in determining children's subsequent motivational orientation profiles and, finally, to explore the relation of motivational orientation profiles among 6-year-old children compared with their motivational status in the third grade. It was hypothesized that the children would show differences in motivation in terms of how they approached typical task situations, leading to substantial changes and relations with language comprehension skills and task orientation. The motivational profile that a child shows in kindergarten was expected to reflect his or her motivational orientations in the third grade.

To summarize, the results from the latent profile and latent transition analysis identified three groups of children with distinctive motivational orientation profiles: task oriented, undifferentiated, and task avoidance. The different motivational orientation profile groups are presented in Figure 4. Developmentally, these motivational profiles were relatively stable: 58% of the children displayed identical profiles from age 4 to 6, and most of the changes in group membership were directed toward neighboring groups. For language comprehension and task orientation, the expected relation was found, showing that an increase in language comprehension skills and task orientation is associated with moving into a task-oriented profile between the ages of 4, 5, and 6. Children with a task-avoidance motivational profile at age 6 showed less task orientation and more task-avoidance orientation in the third grade than those with a task-oriented motivational profile. Based on these person-centered results, motivational orientations seem to become differentiated prior to kindergarten, and in various ways, these differences are related to language comprehension skills before the start of formal reading and writing instruction.

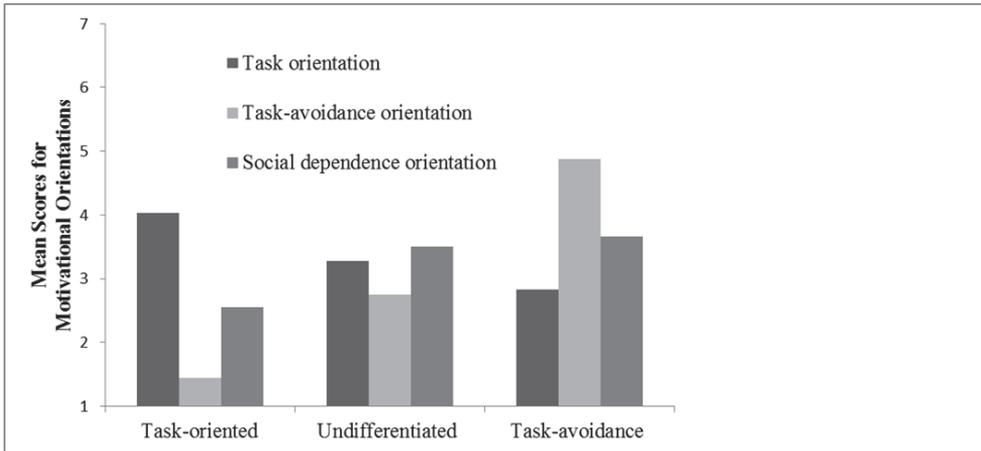


Figure 4. Latent early motivation groups based on the three-class model across ages 4–6

Study III

Laitinen, S., Mattinen, A., Kajamies, A., Vauras, M., & Lepola, J. (2013). Pienten lasten tehtäväsuuntautuneisuus ja sen kehittyminen päiväkodin lukutuokioissa [Small children's task orientation and related development in kindergarten's reading sessions]. *Kasvatus*, 44(5), 482-493. [with English summary, p. 577].

Ample evidence has indicated that task orientation has a strong association with the development of foundational language skills (e.g., Lepola, Vauras, & Poskiparta, 2002; Stephenson, Parrila, Georgiou, & Kirby, 2008). Difficulties with such skills, in contrast, have been found to decrease children's task orientation and increase task-avoidance motivation (Onatsu-Arviolommi, 2003) and, hence, off-task behavior. The purpose of this study was to demonstrate the development of children's motivation during Bunny Stories program for listening comprehension. The first aim was to expand the validated CBeMo scale of Study I in an intervention study and examine children's ($n = 22$) task orientation and task-avoidance orientation during a 1-year intervention program; this type of intervention was chosen because motivational orientations are assumed to describe motivation across contextual situations from a longitudinal perspective (Vauras et al., 2009). The second aim was to analyze children's ($n = 4$) on-task and off-task motivational behaviors during story-reading sessions through observations to deepen the understanding of the nature of motivational orientations and development.

The Bunny Stories program provided children with a flexible, positive, strengthening, and expressively shared reading context that worked as a learning situation. The interactive story-reading sessions give children excellent opportunities to approach in-task situations, such as listening, discussing, elaborating, and continually interacting. These positive, accumulated experiences promoted children's task-oriented behavior, supported their basic psychological needs of belongingness, competence, and autonomy (Deci & Ryan, 2004), and led to general task-oriented motivational tendencies. The children were also expected to receive positive feedback and personal experiences through the stories, for instance, as play-like with story themes (Mattiinen et al., 2014). This multidomain intervention was designed to enhance low achievers' listening comprehension through discussions of the Bunny Stories.

In this research, preschool teachers carried out the intervention with groups of two 4–5-year-old children over the course of 20 videotaped lessons in a day-care setting. The development of the children's ($n = 22$) early task orientation and task-avoidance orientation was assessed by teacher ratings given during adult-guided situations. The development of the children's ($n = 4$) on-task, undifferentiated, and off-task motivational behaviors during the video-recorded shared reading sessions was analyzed. The teachers rated the children's motivation three times: at the beginning, middle, and end of the intervention. For the observations, Ville and Kalle (anonymized names) were selected because they displayed differentiated task orientation and task-avoidance orientation based on the preliminary teacher ratings. Using the developed categories of motivational behavior (see Table 3; cf. Salonen et al., 1998), on-task, undifferentiated, and off-task motivational behaviors were observed. Ville and Kalle and both their pairs were observed during three video-recorded story-reading sessions at the beginning, middle, and end of the intervention.

According to the teacher ratings, Ville and his pair displayed low task orientation and high task-avoidance orientation in all adult-guided situations at the beginning of the intervention. Their task-avoidance motivation decreased over the course of the intervention. Kalle, by contrast, showed high task orientation, and his pair displayed a low task orientation at the beginning. Kalle's task orientation and his pair's task-avoidance orientation increased over the course of the intervention. During the video-recorded shared reading sessions, Kalle's on-task motivational behavior dominated. He consistently faced challenges in trying to understand, ponder, and elaborate the story events and solve problems. Kalle's and Ville's pairs' motivational behaviors were mostly on-task oriented but were more unstable than Kalle's and could easily change to undifferentiated behavior.

Ville had mostly undifferentiated motivational behavior. In particular, he had difficulty continuing on-task-oriented behavior in reading sessions at the beginning and middle of the intervention. Instead, he approached story events with multitasking behavior, for example, playing with Bunny, looking in different directions, and swinging in his seat all at the same time. A small amount of the observed children's motivational behaviors manifested as off-task, including performing substitute activities, discussing, but not linking to, the story events, and using the story materials to do things other than the task at hand. Ville improved his approach toward task (story) situations, answering the teacher's questions and asking questions at the end of the intervention. This may also be because of the manifesting of undifferentiated behavior that has found to have a nondominant tendency when approaching tasks via multitasking (cf. Berhenke et al., 2011). Kalle's increased on-task behavior manifested in, for instance, enthusiastically listening to the story, linking the events of the story to personal experiences, and discussing the story in interactions with his teacher and pair.

The results showed that the children displayed progressively higher task orientation, while their undifferentiated and off-task motivation decreased during the intervention. The teacher-rated task orientation in these adult-guided craft and activity situations were in line with the video-recorded analysis of the story-reading sessions. Thus, the observational analysis of the children's motivational behaviors reinforced the capacity of teacher ratings for assessing children's task-oriented motivation in guided day-care situations. The results of the observed motivational behaviors increased knowledge of the changes in children's task-oriented behavior and interest in reading sessions. The results of both the teacher ratings and the observations emphasize the need to pay greater attention to children's early motivation when discussing early childhood education and its scaffolding practices, interaction dynamics, and significant learning tasks.

Study IV

Laitinen, S., & Lepola, J. (in review). The role of pre-reading skills in the development of motivation and task-specific interest from preschool to kindergarten.

The increased evidence of children's differentiated learning behaviors as motivational orientations, interest in learning-related activities, and pre-reading skills from kindergarten to first grade have raised questions about individual risk factors, such as multidomain vulnerability, a lack of motivation, interest and pre-reading skills, and the over-time stability of these domains, in early childhood.

To identify the developmental associations between pre-reading skills, motivational orientations and interest in reading-related and play-like activities before school-age, a longitudinal study was needed. Consequently, the purpose of this study was to examine the role of pre-reading skills in children's development of motivational orientation and interest in reading-related and play-like activities at a day-care center and home context; these contexts were used because it has been argued that children's motivation is best studied by using multiple sources of data (Brunstein & Heckhausen, 2010). Therefore, when information from multiple sources and domains is integrated, a more complete and accurate picture of an individual can be constructed. In this study, children's reading precursors and language-comprehension skills and teacher-rated motivational orientations were assessed at the ages of 4, 5, and 6 ($n = 130$). The children were also asked about their interest at age 4 and 6. In addition, 90 parents reported their children's interest in reading- and play-like activities in the home context. Based on reading precursors and language comprehension, the results showed that pre-reading skills were associated with divergent motivational-developmental tendencies. As shown in Figure 5, children with low pre-reading skills showed a higher social dependence orientation and lower task orientation over time than children with high pre-reading skills. Although children with high pre-reading skills reported the greatest increase in interest in reading-related activities from age 4 to 6, the children with low pre-reading skills continued to be the most interested in play-like activities. The findings indicate that early reading precursors and language comprehension skills are linked both to the development of motivation and to a child's interest in academic and play-like tasks in different contexts.

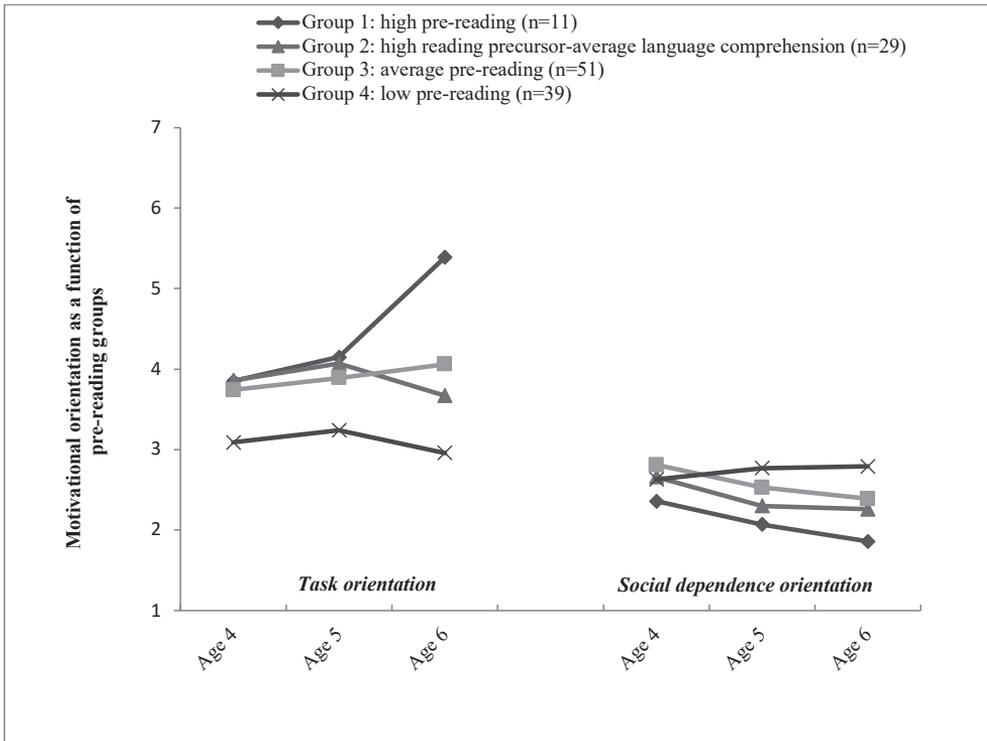


Figure 5. Task and social dependence orientations as a function on pre-reading groups at ages 4–6 (n = 130)

4 Main findings and discussion

“The solution isn’t to do away with dreaming and positive thinking. Rather, it’s making the most of our fantasies by brushing them up against the very thing most of us are taught to ignore or diminish: the obstacles that stand in our way.” – Gabriela Oettingen

This dissertation aims to contribute to our understanding of the developmental patterns of motivational orientations in young children and how these patterns are associated with language skills. To address the challenges related to motivational orientations among young children, the present dissertation general aimed to theoretically, methodologically, and empirically deepen the understanding of motivation and its role in language skill development (see Figure 2). These aims was rooted in the literature on motivational orientation, which has typically focused on school-age children’s motivation—here being task orientation, task-avoidance, and social dependence orientation—as the key dimension characterizing motivational behavior (Salonen et al., 1998; Vauras et al., 2009). This chapter will discuss the theoretical and methodological considerations of the current dissertation, practical implications, and challenges for future research in light of the main findings.

4.1 Theoretical contributions

The focus of motivational orientation research has been to extend the evaluation and understanding of young children’s motivational tendencies and adaptive behaviors in socially guided task situations and how these tendencies are associated with language skills. As previously argued (e.g., Berhenke et al., 2011; Lerkkanen, Kiuru, et al., 2012; Viljaranta et al., 2016), the years prior to entering school form a critical developmental period for learning motivation. Interestingly, the findings of the current dissertation demonstrate that preschool children show different motivational orientations based on teacher ratings; the findings also indicate how these divergent motivational orientations in preschool predict orientations in kindergarten and until the third grade. In addition, the differentiated motivational paths were identified. Importantly, young children’s motivation was found to be moderately stable.

Motivational orientations reflected preschoolers’ and kindergarteners’ distinct motivational behaviors (task approach, task avoidance, and social de-

pendence) in task situations at the day-care center. Previous research indicated that these motivational orientations constituted a triadic, integrated model with a corresponding set of adaptive and coping strategies (Salonen et al., 1998). According to this earlier research, motivational orientations described three distinct goal dimensions established during children's learning and social situations and characterized by their adaptive focus (task, self, and peer or teacher).

In the current study, the preschool and kindergarten teachers were first asked to recall play-like and craft situations and new task activities the children had been asked to perform. The teachers then rated the children's behavior. Based on the teacher ratings, task orientation became evident: the children wanted to continue doing tasks they could perform independently and to take on more challenging tasks (e.g., playing games, building with LEGO blocks, and putting together difficult puzzles). For 6-year-olds, the tasks included story reading and letter writing, and they pondered alternatives and plans, saying, for example, "Now I'll do this. Oh no, I have to do this first" (cf., Annevirta & Vauras, 2006).

These findings support previous studies (e.g., Lepola et al., 2016) showing the importance of children's adaptive focus based on their teacher-rated tendencies to approach, explore, and master learning tasks. According to the teacher ratings, children's task-approach orientations could also interfere in task situations, resulting in task-avoidance behavior. Task-avoidance-oriented children complained, whimpered, moaned, and showed strong disappointment at their own products (e.g., artworks) and the task (at age 6 years). These children also used the materials for activities other than the given task. In addition, this study found a social-dependence orientation in which children had no genuine motivational relationship to learning tasks (e.g., Lepola, 2004; Salonen, Lepola, et al., 1998). Children who showed social-dependence orientations in task situations at the day-care clung to peers or adults when transferring to new situations, imitated peers' activities (e.g., doing similar drawings using the same colors), and immediately asked neighboring peers for help with craft tasks.

The present dissertation contributes to the knowledge of the development of very young children's motivation in several ways. The findings of Study I show that a triadic model of motivational orientations can describe young children's motivation in adult-guided task situations in a day-care center and that the children's perceived task orientation and task-avoidance orientation were moderately stable from ages 4–6. Thus, children with high levels of task orientation at age 4 most often showed task-oriented behavior,

and those with high levels of a task-avoidance orientation most frequently exhibited task-avoidant behavior from ages 4–6. These findings are in line with previous studies (e.g., Poskiparta, Niemi, Lepola, Ahtola, & Laine, 2003), suggesting that these three motivational orientation factors can describe children's motivation before school. Importantly, the findings of Study I indicated that the motivational orientations can be found as early as age 4, and two of the motivational orientation factors were quite stable from 4 to 6 years of age. It is worth noting that social dependence was unstable from age 4 to 6, but it was a significant part of the children's motivational structure at ages 4, 5, and 6. The present findings expand upon prior research on kindergarteners (e.g., Salonen, Lepola, et al., 1998) by showing that social dependence—for example, when children immediately ask help from a peer or adult and/or imitate a peer—exists at the preschool and developmentally across to kindergarten age, and it may help young children adapt to task situations, such as by asking questions about material one does not understand, even if this socioemotional behavior may also move the child from more task oriented toward task-avoidant behavior (e.g., see Berhenke et al., 2011).

In Study II, the findings on children's motivational orientations were examined from a person-centered approach based on the three motivational orientations. The three groups had distinct motivational orientation profiles: task-oriented, task-avoidant, and undifferentiated profiles. These findings corroborated the finding of three motivational orientation profile groups by Smiley and Dweck (1994) and Schwinger and Wild (2012). However, Conley (2012) identified seven different profile groups.

Children with task-oriented profiles accepted challenges and had the ability to ponder alternatives in task situations at the day-care center. From an engagement motivation perspective, such behaviors reflecting both behavioral (on-task behavior) and cognitive engagement ("planning"; Reeve, 2012; see also Annevirta & Vauras, 2006) and executive function in which individuals control their reactions to the environment can be linked to learning activities (Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016). Children with task-avoidance profiles were shown to have task avoidance rather than a task orientation.

The children in the task-avoidant-profile group displayed task avoidance behavior (e.g., complaining about task equipment, showing negative feelings, having self-deprecating thoughts, and engaging in substitute activities). The early educators in the current study perceived that a number of children (9% at age 4 years, 12% at age 6 years in Study II) were not self-determined, did not show genuine interest and self-efficacy in activities, and

did not accept and internalize the teachers' demands to do particular tasks. Similarly, previous research found that task-avoidant children tend to show significantly less of a task orientation and more of a task-avoidant orientation than task-oriented children (Salonen, Lepola, et al., 1998).

Children with undifferentiated motivational profiles were rated as displaying almost equal task-oriented, task-avoidant, and social-dependent behaviors. These children seemed to approach the tasks guided by the preschool teacher but did not—at least not yet—take responsibility for them. Instead, they were observed to resort to both social support and task avoidance. This undifferentiated pattern reflects the multiple achievement goals observed among kindergarteners (Berhenke et al., 2011) and older students (Schwinger & Wild, 2012) during task situations.

The present study traced the development of individual differences in the children's orientations from age 4 to 6, that is, 2 years earlier than in previous research (Viljaranta et al., 2016). Furthermore, the motivational orientation results are in line with those showing that based on whether children had an adaptive or maladaptive motivational orientation tendency, 58% did not change at all from age 4 to 6, even though starting school has considered to be a positive phase for all children (cf. Viljaranta et al., 2016). Because the time span for assessing motivation was earlier than in previous studies (e.g. Patrick et al., 2008; Viljaranta et al., 2016), the results provide unique insights into the longitudinal impact of motivational differences in development.

Furthermore, the results of the current study indicated that 6-year-olds with task-oriented behavior will later show the most adaptive motivation levels when it comes to learning, whereas children with task-avoidant-oriented behavior exhibit significantly more task avoidance in the third grade than other children. In addition, Study II's results showed that a previous task orientation is associated with changes in motivational orientation tendency across the ages of 4, 5, and 6. For example, the higher the task orientation was rated at age 4, the more likely the children were shown to have task-oriented behavior than task-avoidant behavior at age 5. Similar results were found between the ages of 5 and 6. These results build on previous research and indicate that school-age children's motivational status can be predicted well before their transition to school (Poskiparta et al., 2003; Vauras et al., 2009). This also indicates that day-care teachers' motivational ratings have concurrent and predictive validity (cf. Zhang et al., 2011).

Because significant advancements have been made in understanding important links across motivation and other academic domains, such as read-

ing comprehension, among school-age children (for reviews, see Conradi et al., 2014), in the current dissertation, the associations between motivation and language skills were examined among young children.

Study II showed that improvement in children's language-comprehension skills from age 4 to 6 years old was associated with their movement into the task-oriented profile group between the ages of 4 and 5 years old and between 5 and 6 years old. This meant that when children had the language comprehension skills to understand instructions and goals, they better explored and mastered the challenging aspects of tasks. Moreover, Study IV explored associations between motivation and language skills based on reading precursors (i.e., phonological awareness and letter knowledge) and language comprehension (i.e., listening comprehension and vocabulary knowledge). The results showed that pre-reading skills were associated with divergent motivational–developmental tendencies from 4 to 6 years old. For example, children with low pre-reading skills showed higher social-dependence orientation and lower task orientation over time than children with high pre-reading skills.

These findings were verified by Conradi et al. (2014) and Vauras et al. (2009), suggesting that motivation accounts for variation in school-age children's language skills. For example, from kindergarten to first grade, children with greater social dependence had lower task orientation and phonemic and language comprehension skills than those with higher task orientation (Lepola, 2004).

Of note here, Salonen, Lepola, et al. (1998) determined that task-oriented and task-avoidant behaviors differ in kindergarteners' and first-graders' tendency to shift to task avoidance when facing growing task demands, which might explain the variations in the formation of their learning careers. This also aligns with the theoretical idea that task-avoidant behaviors lead to the unfavorable development of at-risk children (cf. Lehtinen et al., 1995; Vauras et al., 2009). Moreover, it should be noted that Guthrie et al. (2007) and Lehtinen et al. (1995) also showed the benefits of training combining motivational strategies and reading comprehension rather than focusing on them separately. The progressive task orientation was also found among 4–5-year-old children during the one-year research on listening comprehension in Study III.

Additionally, the findings of Study IV showed that early skills in reading precursors and language comprehension are linked to the development of children's interest in academic and play-like tasks in different contexts. For example, although children with high pre-reading skills reported the greatest

increase in interest in reading-related activities from the ages of 4–6, those with average pre-reading skills continued to be the most interested in play-like activities. Interestingly, the results of Study IV bring out the significant role of play-like activities in motivating children with poorer pre-reading skills. This is in line with previous research that indicated the association between play-like activities and behavioral approaches (e.g., Wanless et al., 2013) and also language skills (e.g., McClelland, Kessenich, & Morrison, 2004).

Children's self-reports on task-specific interests were in line with parental reports when the parents observed the children's task-specific interests at home. These findings support previous research showing that individual task-specific interests emerge in learning activities (e.g., Eccles et al., 1983) among young children (e.g., Martin et al., 2013; Torppa et al., 2007). This is consistent with the findings of the later studies, showing that children in day-care contexts, and possibly at home, can judge their own interests reading-related and play-like tasks. Thus, it is worth noting that task orientation and task-specific interest have been found to predict favorable learning outcomes, such as good performance in reading (e.g., Stipek, Newton, & Chudgar, 2010). Reciprocally, positive perceptions of children's competence, as well as the emotions related to tasks and language comprehension skills, can help increase task-oriented motivation (Bernacki, Nokes-Malach, & Aleven, 2015; Ryan & Deci, 2000). This might also be because of the positive effect of the home literacy environment (e.g., Sénéchal, 2006).

Even if the role that teacher plays in supporting children's learning was not the research focus in this study, the quality of teacher–child interactions may affect young children's learning motivation and pre-academic performance in day-care (e.g. Pakarinen et al., 2010; 2011) as well as parenting style (e.g. warmth, responsiveness, and attitudes) (Kiuru, Aunola, Torppa, Lerkkanen, Poikkeus, Niemi, Viljaranta, Lyyra, Leskinen, Tolvanen, & Nurmi, 2012) and evocative impact such as child-parent interaction (Silinskas, Niemi, Lerkkanen, & Nurmi, 2012) may associate with children's reading-related activity at home.

To evaluate young children's motivation from multiple perspectives—teacher, child, parent, and experimenters—in Study III, the three distinctive and dominant aspects of 4–5-year-old children's behaviors were examined through observation (on-task, off-task, and undifferentiated) and the on- and off-task children's motivational behaviors were also examined by teachers' reports. These findings showed that along with the study by, for instance, Downer et al. (2008), that observing may provide initial evidence when assessing young children's behaviors in task situations. Moreover, prior stud-

ies (e.g., Berhenke et al., 2011; Patrick et al., 2008) have used self-reports alongside observation to analyze children's motivation-related behaviors. Parentally perceived children's reading-related activities at home may also have developmental significance (e.g., Berhenke, 2013). Furthermore, teacher ratings have been found to extend the motivation-in-context viewpoint to general motivational orientations (e.g., Vauras et al., 2009). These multiple methodological perspectives underscore one of the strengths of the current dissertation in examining young children's motivation and language skills.

In sum, the present dissertation aimed to construct a theoretically integrated Child's Behavior and Motivation (CBeMo) scale, and the results contribute to previous studies on motivation (e.g., Vauras et al., 2009) by showing that differentiation in motivational orientations begins as early as 4 years of age, and these differences stabilize as the child grows older. As suggested, it is important to understand the factors underlying young children's motivation and how this affects their approaches to task situations and their academic functioning and performance both in day-care and home contexts. Furthermore, the findings regarding motivational orientation and pre-reading skills enhance the understanding of the associations between motivation and language skills before the start of formal reading, writing, and math instruction.

4.2 Methodological reflections

Supplementing the methodological considerations presented above, this section summarizes the overarching methodological considerations concerning all, or most of, the studies. One methodological strength of this dissertation is its use of a longitudinal approach that combines statistical and descriptive methods, enabling the selection of the best methods available to answer the research questions. The different methods consequently complemented one another in enlarging and deepening the understanding of young children's motivation and the associations of motivation with language skills longitudinally. To empirically capture the development of motivational orientations and language skills, the methodological aim was to develop methods of analyzing motivation and language skills from indirect sources, such as teachers' reports, and direct sources, such as children's, parents', and experimenters' perspectives. This aim was inspired by a variable (Salonen et al., 1998), person-centered (e.g., Nurmi & Aunola, 2005), and video-observing approach (Berhenke et al., 2011; Järvelä, Salonen, & Lepola, 2001; Salonen et al., 1998) to the variable structure and stability of young children's motivation and language skills.

In Study I, the longitudinal data made it possible to determine the structure and stability of children's motivation from the ages of 4 to 6. Teacher ratings were used to analyze the ways in which the children might be motivationally, emotionally, and socially tuned to a socially guided (i.e., teacher) task situations at a day-care center in the long term. In Studies II, III, and IV, the validated scale of children's behavior and motivation formed the basis for the statistical analysis used to examine the associations between motivation and language skills. In Study III, during a 1-year intervention study to deepen and extend understanding of motivation, video observation was used to examine whether it is possible to observe teacher-rated motivation using the experimenters' video-observed task situations. In Study IV, motivational–developmental tendencies were examined based on pre-reading skills and children's and parents' self-reports regarding the children's interests in reading-related and play-like activities. In sum, even if more evidence with larger sample may be needed to determine the appropriateness of the early motivation studied in this dissertation as well as the used challenged analyzing methods, by combining different multisource and domain perspectives is the one of the strengths in current dissertation when evaluating the development of young children's motivational tendencies and associations with language skills.

4.3 Practical implications and challenges for future research

Supplementing the practical implications presented in the previous section, this section summarizes the main practical implications concerning all the studies in the present dissertation and discusses future research challenges. One strength of this dissertation is its practical significance. It has implications for educators in early and primary education and for researchers in the field of learning and motivation. All the conducted studies present findings and provide information about the features of day-care centers and the pedagogical practices that may improve young children's behavioral and cognitive approaches toward learning demands. Ultimately, focusing on children's motivation, language skills, and support mechanisms can change their unsuccessful developmental trends into successful ones.

The clear benefit of recognizing motivational risks

Based on the current dissertation's results and previous research, the signs of children's differentiated motivational orientations should be examined and identified as early as age 4, 5, and 6. As indications of comprehension, task

orientation and language comprehension skills proved to be a strong predictor of children's task-oriented behavior from the ages of 4 to 6 (Study II). At this age, children with high pre-reading skills also showed higher task orientation, lower social dependence orientation, and a greater interest in reading-related activities than children with average pre-reading skills (Study IV), and task orientation showed moderate stability from ages 4 to 6 (Study I).

Conversely, task-avoidance and social dependence orientations with less task-oriented behaviors were already detected at the ages of 4, 5, and 6. Task-avoidance showed moderate stability from ages 4 to 6 (Study I), and children who had a task-avoidance profile at age 6 showed less task orientation and more task-avoidance orientation in the third grade than those with a task-oriented profile (Study II). Among the available research on motivation and language skills, one can find the reasons why these signs of children's motivational vulnerability should be taken into consideration (for a review, see Conradi et al., 2014). With increasing optimal scaffolding given by kindergarten teachers (Kajamies, Mattinen, Kaurila, & Lehtonen, 2016), children's high task-avoidance orientation decreased, and on-task behavior increased during the 1-year intervention study (Study III). This kind of intervention after the first signs of motivational vulnerability are identified may save children from entering into a negative developmental circle (see Lepola, 2000), and as Kajamies et al. (2016) noted, it is an important policy implication of low achievers' learning. All in all, to support early academic skills, self-regulation is important to children's ability to become motivated in task-related situations that do not make immediately sense to them (van der Aalsvoort, Lepola, Overtoom, & Laitinen, 2015). As noted, children have different goals, and motivation is needed in directing behavior toward goals, whereas self-regulation supports in regulating motivational behavior (Winne & Hadvin, 2012). Among young children, active approach to learning task have found to be in developmental association with both self-regulation and task orientation (Williford et al., 2013). Especially, the learning environment (Bronson, 2000), such as role of a teacher and/or a peer is essential to support young children's approach and regulation in learning tasks (Williford et al., 2013).

A measurement tool to be used in day-care centers

Because the development of motivation in young children is closely related to their language skills in their later learning careers, evaluation from different perspectives—that is, teachers, children, parents, and experimenters—when assessing motivation is important for promoting and evaluating effective support and interventions focused on improving motivation across ages and task

situations (cf. Heckhausen & Heckhausen, 2010). To address the lack of a measurement tool for examining motivation and possible motivational vulnerability among young children, the purpose of Study I was to construct a relatively short and practical measurement instrument that takes into account the different ways in which children may motivationally, emotionally, and socially behave in learning situations from the ages of 4 to 6 (see also Lehtinen et al., 1995). The CBeMo scale was published in *The Finnish Journal of Psychology* (Lepola, Laitinen, & Kajamies, 2013) and is, hence, a currently available method used at many day-care centers in Finland, especially by preschool and kindergarten teachers, as well as psychologists and researchers. The CBeMo scale is used in the Netherlands (see van der Aalsvoort et al., 2015) and in Israel (see Brody et al., 2018), and the appropriateness of the questionnaire has been studied cross-culturally.

The study using the CBeMo scale revealed substantial differences in preschool- and kindergarten-age children's motivation. In addition, the development of children's motivational profile groups was established during preschool and kindergarten, and the association between children's motivation before entering school and their motivational status in the third grade was determined. However, developmental changes in motivational tendencies were also perceived by teachers at an individual level, indicating possible changes of motivation in adult-guided task situations in a day-care context. The dominance of task orientation was, however, the crucial prerequisite for the development of more favorable motivational tendencies for learning, whereas the formation of unfavorable motivation was related to the dominance of a task-avoidance orientation at the preschool and kindergarten levels. Finally, the current study showed that the motivation of children in day-care was related not only to their subjective learning goals, but also to their learning-context perception. This indicates that while evaluating young children's motivational orientations, it is important to note that their motivation may be affected by several factors, including age, gender, self-regulation, academic skills, the setting or environment and the position of the teacher who is completing the evaluations (Schunk, Pintrich, & Meece, 2010; Witt, Mitchel, & McConnell, 2012). According to the CBeMo scale, significant others—that is, peers and/or teachers—play a central role in the development of young children's motivation. This means that children who showed willingness to work on a task were rewarded in the task situation by taking action (i.e., imitating and/or asking help), observing the actions of others (i.e., peers and/or teachers), and evaluating the effects of these actions, which enable children to regulate their own behaviors in task situations (cf. Bandura, 1997; Bronson, 2000; Locke, 2015). On the other hand, Määttä (2015) studied motivational

aspects of young children's self-regulated learning and found that children who seem to need the most support are neither reluctant to seek nor receive it from the teacher. Instead, their confidence is boosted through peer support. Therefore, these reciprocal and situational perceptions seem to be embedded in the interactions in day-cares' adult-guided situations, reinforcing children's motivational dispositions for learning and their learning careers. Thus, it is vital to consider outwardly observable indicators of motivation for young children and to use self-reports to understand their inner motivational processes (i.e., task-specific interests) and to use parents' perceptions of the home learning environment in promoting children's development (e.g., Sylva, 2010), for example for early educators in enforcing reading skills.

The essential role of motivation in the development of reading skills

Mastery of reading comprehension facilitates children's participation in society (OECD, 2010). Thus, it is a necessary skill for coping with the demands of the civic society and for increasing competencies. When a child has learned sufficient skills for reading, which is based on the use of her or his language ability to decode and comprehend text (Roskos, Tabors, & Lenhart, 2009; Vukelich, Christie, & Enz, 2007), she or he is no longer so much bound to external help but rather, with increasing autonomy, has the possibility to apply these skills in many ways. Reading is a skill that is often the result of formal, adult-guided teaching and modeling and children's increasing abilities to master the meanings and sound structures of words (e.g., see Lerkkanen et al., 2010; Silinskas et al., 2016). Learning to read has also found developmental interplay with motivation among school-aged children (e.g., for a review, see Conradi et al., 2014). The current study underscored that motivation is developmentally associated with reading skills, and these associations were found before school age among 4–6-year-olds. At the individual level, the results showed that the higher the 4–6-year-olds scored on language comprehension skills, the higher their level of task-oriented behavior was (as based on teacher ratings). Furthermore, the results showed that poor pre-reading skills in language comprehension and reading precursors were not only crucial factors related to reading difficulties, but also to the formation of low task orientation from preschool to kindergarten. These results also showed that children's self-reports and parents' perceptions regarding children's task-specific interests were associated with pre-reading skills.

Today, children's motivation and interest in reading tasks have been discussed in international education studies (e.g., PIRLS-study, 2011; 2017) because on the one hand, for example in Finland, reading motivation of fourth-graders has lately decreased and is among the weakest of the exam-

ined countries (Mullis, Martin, Foy, & Drucker, 2012; Mullis, Martin, Foy, & Hooper, 2017), and on the other hand, early language skills are strong predictors of reading as far as reading at age 15 (Eklund, Torppa, Sulkunen, Niemi, & Ahonen, 2018). As mentioned above, children's regressive reading careers (relative to others) had their starting points in both cognitive and motivational factors formed interactively during early childhood years. Children who develop a reading routine acquire increasingly more word meanings and word forms from, for example, books, further facilitating their reading development and their willingness to read for pleasure (for a review, see Mol & Bus, 2011). Children who lag behind in comprehension or technical reading and spelling skills are especially at risk of developing serious reading problems because they are less willing to read during, for example, leisure time (Stanovich, 1986). Thus, the reading gap widens, and the Matthew effect becomes stronger (for a review, see Mol & Bus, 2011), which refers to the notion that better readers get even better, and poorer readers become relatively poorer during their reading development (Stanovich, 1986). It seems the early childhood years are crucial for motivational and language development later on; thus, family and day-care pedagogical practices are essential to support so that children's social, cognitive, and motivational well-being can be fostered.

The necessity for longitudinal studies

Although the methodological issues discussed in Studies I, II, and IV defined a social dependence orientation, and even though Study III addressed multitasking as a tendency of non-task-oriented behavior, the signs of a child's task-oriented behavior are not dominantly focused in one behavior. According to Harter (1981), this multitasking may represent a lack of independent mastery of task demands. The child may also actively listen to storytelling and/or seek help to understand a task problem (e.g., Karabenick & Newman, 2009), while doing an activity (e.g., "multitasking": playing with Bunny, looking in different directions, and swinging in one's seat, Study III), or while listening to storytelling. Therefore, it would be useful to study the association between off-task and multitasking behavior by using a long-term research design and following both of these motivational behaviors for a long period, starting at the age when these skills are just being developed. This would allow us to study the factors that are most likely to halt the emergence of later motivational vulnerability and/or learning problems, as well as discover the developmental origins of these motivational and learning problems. Consequently, the description and analysis of different risk profiles and individual and contextual resources or supportive patterns (e.g., to guide teachers' considerations of the implications of multiple aspects of task behavior and provide additional sup-

port or a different form of instruction when working with young children on challenging tasks) could be identified. These above-mentioned resources and supportive patterns may act as a buffer, fostering resilience against the negative effects of the risk factors and affect via a continuous dynamic process the future course of children's development.

Longitudinal studies are also needed in modeling the temporal order of these phenomena and in identifying the antecedent expressions of negative directed development before onset and/or manifestation, even if these are perhaps at a normal or below-normal threshold range on the child developmental continuum and, hence, are identifiable. These findings also indicate that prospective studies are needed to more shed light on these functions by thorough analyses of the developmental associations between teacher and parental support, motivation, language skills, and children's interest in language-related activities during the most important years of learning, which begin at birth. The challenge is to identify both the risk factors and the supportive and resilience factors as early as possible and to get involved in halting these factors early on; particularly, during developmental transitions, it may be easier to influence the direction of these developments.

Additionally, doing more to understand how preschool and kindergarten teachers think about motivation may help to better shape motivational interventions and imbed educational practices. These teachers, as well as parents and the children themselves, are a valuable and untapped source of information and support about children's motivational development and learning. According to Study II, high scores in children's language skills predicted a high level of task-oriented behavior, and low scores in language skills predicted low task-oriented behavior. Further, motivational behavior at age 6 was associated with children's motivational status in the third grade. Study IV confirmed that children with high levels of pre-reading skills showed high levels of task orientation and interest in reading-related activities, and children with low and average levels of pre-reading skills showed low task orientation and more interest in play-like activities. In this respect, the observed increases in on-task motivational behaviors in Study III are important from an interventional standpoint. These many developmental associations above, at least from an educational point of view, provide the need for early interventions with a genuine means of differences in young children's motivation and language skills and might influence children's later motivation and performance (e.g., Chapman & Tunmer, 1997; Lepola, Salonen, & Vauras, 2000; Poskiparta et al., 2003). Moreover, further knowledge of the cognitive and social mechanisms, such as the quality of classroom instruction and interac-

tion (e.g., Lerkkanen, Kikas, et al., 2012; Lerkkanen et al., 2016; Lerkkanen, Kiuru, et al., 2012; Remsperger-Kehm, 2017), the effectiveness of preschool and kindergarten learning environments (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009), and executive skills (Cartwright & Guajardo, 2015) might be needed in supporting the development of early motivation. To summarize, when planning resources to improve children's motivation, language skills, social situations (including their peer and teacher relationships in the day-care and home contexts), and task-specific motivations, children's developmental process should be taken into account.

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