

Marold Wosnitza · Stuart A. Karabenick  
Anastasia Efklides · Peter Nenniger (Eds.)

# Contemporary Motivation Research

From Global  
to Local  
Perspectives



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to Local  
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edited by  
Marold Wosnitza  
Stuart A. Karabenick  
Anastasia Efklides  
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# List of Contributors

***Mary Ainley***

University of Melbourne  
Psychology Department  
Redmond Barry Building  
VIC, 3010, Australia

***Tanja Bipp***

Eindhoven University of Technology  
Department of Technology Management  
Human Performance Management  
Group  
Pav U41, P.O. Box 513  
5600 MB Eindhoven, Netherlands

***Dirk Bissbort***

University Koblenz-Landau  
Campus Landau  
Centre for Educational Research  
Bürgerstr. 23  
76829 Landau, Germany

***Gunnar Bjørnebekk***

University of Oslo  
The Norwegian Centre for Studies of  
Conduct Problems  
P.O. Box 1565 Vika  
NO-0118 Oslo, Norway

***Sarah Buckley***

University of Melbourne  
Psychology Department  
Redmond Barry Building  
VIC, 3010, Australia

***Sara Sunshine Campbell***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Joanne Chan***

The Hong Kong Polytechnic University  
Department of Applied Social Sciences  
Hung Hom  
Hong Kong

***Sarah Childers***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Raquel Carvalho***

I.S.P.A.  
R. Jardim do Tabaco 34  
1149-041 Lisbon, Portugal

***Fotini Dina***

Aristotle University of Thessaloniki  
School of Psychology  
541 24 Thessaloniki, Greece

***Anastasia Efklides***

Aristotle University of Thessaloniki  
School of Psychology  
541 24 Thessaloniki, Greece

***Stefan Engeser***

Technical University Munich  
Department of Psychology  
Lothstr. 17  
80335 Munich, Germany

***Stefan Fries***

Bielefeld University  
Universitätsstraße 25  
33615 Bielefeld, Germany

***Holger Horz***

University of Koblenz-Landau  
Thomas-Nast-Str. 44  
76829 Landau, Germany

***Ilana Seidel Horn***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Stuart A. Karabenick***

Combined Program in Education and  
Psychology  
University of Michigan 1  
400D School of Education  
610E. University, Ann Arbor, MI 48109,  
USA

***Riitta Kinnunen***

University of Turku  
Department of Teacher Education  
and Centre for Learning Research  
Assistentinkatu 5, 20014 Turku, Finland

***Thomas A. Langens***

University of Wuppertal  
Department of Psychology  
Gaußstraße 20  
42097 Wuppertal, Germany

***Erno Lehtinen***

University of Turku  
Department of Teacher Education  
and Centre for Learning Research  
Assistentinkatu 5, 20014 Turku, Finland

***Doris Lewalter***

Technical University Munich  
Fachgebiet Gymnasialpädagogik  
Lothstr. 17  
80335 Munich, Germany

***Karan Mahna***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Angela D. Miller***

University of Kansas  
Schiefelbusch Life Span Institute  
Lawrence, KS, 66045

***Tamera B. Murdock***

University of Missouri-Kansas City  
Department of Psychology  
Kansas City, MO, 64110-2499

***Peter Nenniger***

University Koblenz-Landau  
Campus Landau  
Centre for Educational Research  
Bürgerstr. 23  
76829 Landau, Germany

***Richard S. Newman***

University of California, Riverside  
School Psychology  
Graduate School of Education  
Riverside, CA 92521, USA

***Susan Bobbitt Nolen***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Thea Peetsma***

University of Amsterdam  
Faculty of Social and Behavioural Sci-  
ences  
P.O. Box 94208  
1090 GE Amsterdam, Netherlands

***Francisco Peixoto***

I.S.P.A.  
R. Jardim do Tabaco 34  
1149-041 Lisbon, Portugal

***Reinhard Pekrun***

University of Munich  
Department of Psychology  
Leopoldstrasse 13  
80802 Munich, Germany

***Pekka Salonen***

University of Turku  
Department of Teacher Education  
and Centre for Learning Research  
Assistentinkatu 5, 20014 Turku, Finland

***Wolfgang Schnotz***

University of Koblenz-Landau  
Thomas-Nast-Str. 44  
76829 Landau, Germany

***Katrin Scholta***

RWTH Technical University Aachen  
Institut for Education  
Eilfschornsteinstr. 7  
52056 Aachen, Germany

***Julia Schüler***

University of Zurich  
Department of Psychology  
Binzmühlestrasse 14/6  
8050 Zurich, Switzerland

***Georgios D. Sideridis***

University of Crete  
Department of Psychology  
741 00 Rethimno, Greece

***Katja van den Brink***

University Koblenz-Landau  
Campus Landau  
Centre for Educational Research  
Bürgerstr. 23  
76829 Landau, Germany

***Ineke van der Veen***

University of Amsterdam  
Faculty of Social and Behavioural Sci-  
ences  
P.O. Box 94208  
1090 GE Amsterdam, Netherlands

***Marja Vauras***

University of Turku  
Department of Teacher Education  
and Centre for Learning Research  
Assistentinkatu 5, 20014 Turku, Finland

***Simone Volet***

Murdoch University Perth  
School of Education  
Murdoch 6150, Western Australia

***Christopher J. Ward***

University of Washington  
Box 353600, Seattle  
WA 98195-3600, USA

***Marold Wosnitza***

Murdoch University Perth  
School of Education  
Murdoch 6150, Western Australia



# Preface

**Marold Wosnitza, Stuart Karabenick,  
Anastasia Efklides, & Peter Nenniger**

All social and behavioral sciences face the challenge of determining which theories and empirical findings are comprehensible and applicable only within given contexts or cultural confines and those that are generalizable, albeit with appropriate parametric adjustments. This emic versus etic distinction originated in linguistics (Pike, 1954), anthropology (Goodenough, 1970; Harris, 1980), and subsequently sociology and psychology exemplified in work by Triandis and colleagues (Triandis, Malpass, & Davidson, 1971). In the field of education, Cronbach (1982) framed the issue as the need to emphasize external as well as internal validity in research designs. The field of motivation is no exception. In fact, it is arguable that the nature of the subject renders motivation phenomena especially susceptible to the influences of context and culture. Motivation concerns the determinants of the direction, intensity, and persistence of behaviors, and includes their cognitive and affective concomitants. Motivation theories propose different ways to conceptualize those determinants, such as needs, motives, goals, self-beliefs, and differences in how individuals construe situations.

Contributions to the motivation literature vary in the degree of attention to issues of generality. At one end of the continuum are cross-cultural studies in which specificity takes center stage. Research that focuses on the influence of context also attends to issues of relative generality (to other contexts). Many studies, however, are conducted under highly localized conditions, and even if they tacitly assume generality (e.g., to other classrooms or schools) there are limiting conditions that often remain unexamined. This issue is very much at the center of current research and evaluation in education (Green, Camilli, & Elmore, 2006). Accordingly, there is clearly a need in the field of motivation to showcase the range of work in a way that recognizes contributions that are “snapshots” and those characterized as presenting a “global picture.” Whereas each contribution to this volume has elements of both, it is divided into two parts that feature global and local perspectives to varying degrees.

## **Part 1: Global Perspective in Motivation**

The first part presents several theoretical issues that reflect more global motivational processes and research. In their chapter “Motivation in School from Contextual and Longitudinal Perspective” *Vauras, Salonen, Lehtinen, and Kinunnen* focus on how motivational orientations, socio-emotional coping strategies and cognition are established and maintained in the classroom context over school years. Contrary to short-term changes, the emphasis is on the interactive, long-term development of cognition and motivation in multidirectional social interactions. They discuss how these interactions must be under-

stood as embedded in complex social contexts and institutional-cultural frames of reference.

In “Seeking Help: Generalizable Self-Regulatory Process and Social-Cultural Barometer” *Karabenick and Newman* discuss how unlike other (cognitive and metacognitive) strategies, seeking help is a generalizable social-interactive process that renders it susceptible to specific motivation-related social and cultural influences. The social-interactive context in which help seeking takes place can influence comprehension monitoring, the perceived costs and benefits of seeking (and not seeking) help, from whom help is requested, and why.

In their chapter “A Framework for Personal Goals in Collaborative Learning Contexts” *Wosnitza and Volet* explicate the complex nature and characteristics of small group learning environments by proposing a generalizable systematic conceptual framework that incorporates both personal and group goals. Examples are provided that illustrate its application to tasks with different structures and demands.

*Schnotz, Fries, and Horz* then present “Motivational Aspects of Cognitive Load Theory” that begins with a review of how cognitive load, defined in terms of mental effort, is integral to the process of learning and instruction. They then describe the challenges and complexities that arise when integrating motivation and cognitive load theory, especially given recent developments in motivation research that include effects of the learning context.

*Pekrun* links emotions with motivation in achievement settings. The emphasis of the chapter “Global and Local Perspectives on Human Affect: Implications of the Control-Value Theory of Achievement Emotions” is on proximal and distal antecedents of achievement emotions, ranging from situational to personal and to social and socio-historical contexts. The chapter discusses where research on achievement emotions is consistent with generalizable principles (conceptual, theoretical and methodological) and where it is limited by virtue of context or culture and ways that context, culture or other conditions constrain such generalizations.

In “Metacognitive Experiences as the Link between Situational Characteristics, Motivation, and Affect in Self-Regulated Learning”, *Dina and Efklides* argue in favor of a Model of Self-Regulated Learning that takes into consideration both general person and situational factors in learning settings. Their approach features “metacognitive experiences” which have a cognitive and affective character and connect extrinsic feedback with students’ representation of the learning situation, their competence and self-concept. Moreover, metacognitive experiences mediate the situational effects on state anxiety. This interaction of general person characteristics and situationally sensitive metacognitive experiences allows both stability and variation in behavior and renders self-regulation adaptive in the short as well in the long run.

*Nenniger, van den Brink, and Bissbort’s* chapter “On a Differential Explanation of Self-Direction in Motivating Learning Environments” attempts to reconcile contradictory findings in research on self-directed/self-regulated learning. The concept they introduce involves “differential modes of self-direction” and their interactive dynamics with motivational processes. They follow the question whether motivation is global or must be treated locally using separately adapted partial theories and propose that a differential approach integrating complementary research traditions is more suitable for adequate

explanations.

In “Linking Personality to Work Motivation and Performance: Individual Differences Effects” *Bipp* reviews the current literature that relates personality constructs of cross-cultural stability to motivational constructs, building a foundation for explaining their relation to achievement behavior. Especially, approaches to integrate personality factors into a comprehensive model of goal-oriented action, work motivation and performance are presented and supplemented by empirical data. She shows that the fact that goals and associated constructs such as goal orientations can serve as a missing link between personality traits and performance in different settings supports the generalizability of the notion that motivational constructs or self-regulatory processes mediate or transport the effects of personality traits on performance.

In the last chapter of this section, “An Investigation of Possible Mediators and Moderators of the Approach and Avoidance - Performance Relationship in Children: Theoretical and Experimental Aspects”, *Bjørnebekk* seeks to expand the existing view of motivation in achievement theory by exploring how emotional processes directly and indirectly influence more situational specific cognition, affect during problem solving, and performance through individual variation in approach and avoidance tendencies and goal distance in time. The author proposed, therefore, that the generalized functional significance of achievement goals is overemphasized, and should be more properly conceived as context dependent. This chapter, thus, paves the way for a more local perspective to motivational phenomena as exemplified in the chapters of the second part.

## **Part 2: Situation and Context Effects in Motivation: Local Perspective**

In Part 2 of this book, situation and context effects are emphasized. Interest and feedback are two situation- and context-specific factors that affect motivation. In “Interest and Efficacy Beliefs in Self-Regulated Learning: Does the Task Make a Difference?”, *Ainley, Buckley, and Chan* focus on the motivational variables of interest and self-efficacy, and provide snapshots of relationships between interest and self-efficacy as they occur while students work on specific problems in classrooms. These snapshots gain added dimensionality as instantiations of motivational variables that have well-researched roles in the global picture.

In the chapter “The Impact of Goal and Feedback Treatments on Self-Determined Motivation and Situational Interest in a Computer Based Learning Context” *Lewalter and Scholta* describe how motivation and interest develop in relation to extrinsic feedback; thus the authors contribute to our understanding of the mechanism of motivational development and change. Specifically, they propose that the way people handle goals and feedback depends very much on the situation and prior learning experiences in similar contexts. According to the authors, research programs combining local and global focuses of investigation promise to provide a more complete understanding of the complex ways in which motivational processes are affected by personal and situational characteristics on different levels depending on the specific learning context.

*Murdock and Miller* then present “Specification Issues in the Use of Multilevel Mod-

eling to Examine the Effects of Classroom Context: The Case of Classroom Goal Structures” that determine global and specific motivational factors that influence student cheating in school. Their analysis considers teasing apart the role of individual goals from classroom goal structure by comparing and contrasting the various structural models that have been specified and tested in the motivation literature. In particular, the authors address variation in the sources of data used to assess goal structures, and hypothesized relations between personal goals and classroom goal structures.

*Nolen, Ward, Horn, Childers, Campbell, and Mahna* argue in their chapter “Motivation Development in Novice Teachers: The Development of Utility Filters” that general descriptions of motivation do not adequately capture preservice teachers’ motivation. They describe how understanding teachers’ motivation to learn prompted practices in a graduate level, secondary pre-service teacher education program, and how it developed in multiple social contexts. The authors introduce the concept of “motivational filters”, and in particular the utility filter, to describe how preservice teachers make decisions about learning. Further, they propose that we should not focus on local snapshots nor a global picture but rather a narrative in which processes of development and change can be documented and analyzed.

*Peixoto and Carvalho* then focus on “Students’ Perceptions of Parental Attitudes toward Academic Achievement: Effects on Motivation, Self-Concept and School Achievement”. Particular attention is paid to relationships with motivational orientations. In particular the authors show that perceived parental attitudes towards learning as a process or as performance have direct and indirect effects on students’ motivational orientation and school achievement. In their chapter, motivational orientations are considered as global predispositions, in the sense that they can be considered as a trait, more or less stable, but that specific school tasks determine how these orientations are actualized.

In the next chapter “Influencing Students’ Motivation for School: The Case of First-Year Students from Different Ethnic Background in the Netherlands in the Lowest Level of Secondary School” *Peetsma and van der Veen* show that what are considered unfavorable motivational tendencies in a specific context can be transformed into more positive, long-term goals. Furthermore, differences between specific groups of students, such as girls and students from ethnic minorities, are considered. The utilized motivation theories can be seen as more global, at least for the western world, but aspects of motivation and context seem to have different outcomes for different groups of students.

In “Normative vs. Non-Normative Performance Goals: Effects on Behavioral and Emotional Regulation in Achievement Situations” *Sideridis* describes the affective experiences of students with and without learning problems when motivated for different reasons. The connection between emotional and motivational processes when performing specific tasks and the generalizability of these processes across different populations is discussed. Motives at the task level are examined, along with tests of the proposition that performance-approach goals, which represent situation-specific motives, can be further differentiated into normative and non-normative components.

The following chapter “Incentives and Flow Experience in Learning Settings and the Moderating Role of Individual Differences” by *Schüler and Engeser* provides a snapshot of motivational processes in terms of the experience of “flow”, which is connected to general motivational frameworks. Their analysis delineates how the motivation to engage

in behavior is determined by an interaction between personal motives and goals and the situation, with its incentives and affordances.

Finally, *Langens*, in the last chapter, investigates the effects of negative mood and mood-regulation strategies on long-term goal striving. Two general principles that specify the effect of mood and mood regulation on goal striving are outlined, and three studies that empirically test these principles are presented in the chapter “Striving for Personal Goals: The Role of Negative Mood and the Availability of Mood-Regulation Strategies”. In addition to general principles, results indicate ways that effects of mood-regulation strategies on goal striving are moderated by cultural and contextual factors.

To conclude, the present volume provides a wealth of perspectives in the conceptualization of and research on motivational phenomena. The global or local perspectives theme adopted here arises particularly when motivation is seen in relation to affect and self-regulation, both of which are tied to situation and context factors. From this point of view, the complexity and diversity of motivational phenomena are shown, and the challenges for research and theory are highlighted, because “snapshots” require an understanding of the interaction of general mechanisms as they confront local conditions. The development and change of motivation is another prominent theme, which while closely related to global/local perspectives, adds a temporal dimension in human motivation that continues to be a challenge for future research.

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# Motivation in School from Contextual and Longitudinal Perspectives

**Marja Vauras, Pekka Salonen, Erno Lehtinen, & Riitta Kinnunen**

The focus of this chapter is on how motivational orientations and socio-emotional coping strategies in relation to cognition are established and maintained in the classroom context over the school years. Contrary to short-term changes, the emphasis is on interactive, long-term development of cognition and motivation in multidirectional social interactions, which must be understood as embedded in complex social contexts and institutional-cultural frames (e.g. Lehtinen, Vauras, Salonen, Olkinuora, & Kinnunen, 1995; Olkinuora & Salonen, 1992). In our studies, the primary focus has been on the sub-performing students, that is, students who experience multiple cognitive and motivational problems in school. In order to unveil the behavior-in-context, mirroring the complexity of dynamic and socially embedded human motivation, emotion and learning, a multi-method research approach has been applied, with a strong emphasis on observations in real-life situations. In this chapter, we argue on the basis of the evidence from multiple observations and measurements in varying (local) contexts that there is a strong tendency for gradual formation of more generalized, relatively stable motivational (global) dispositions that are resistant to change, particularly, in the case of students with learning difficulties.

Our chapter is structured in three sections. We start by presenting our theoretical perspective on motivation, and a relational model that describes learners' basic alternatives for orienting and adapting to interpersonal learning contexts. The second section discusses the problem of general versus specific motivation in terms of stability of the learner's motivational dispositions, and variability and modifiability of motivation-related behaviors in school contexts. Evidence from our longitudinal studies is used to illustrate the accretion and generalization of motivational tendencies over the school years. Motivationally and cognitively diverging developmental paths are intimately linked to the discussion on inertia in learning, for example, how some students show strong resistance to instruction. Intervention studies and case analyses are used to illustrate resistance patterns and the dynamics of resistance. We argue that resilience is linked to interpersonal dynamics between the students and the teachers shaping the transactions and instructional scaffolding in school settings, which is compatible with more general notions of the person-environment fit theory (see Hunt, 1975) and educational match vs. mismatch in terms of motivation and emotion (see, e.g., Eccles & Midgley, 1989; Roeser, Eccles, & Sameroff, 2000; Wigfield, Eccles, & Rodriguez, 1998). In the third section, we present a revised conceptualization of micro-genetic and long-term developmental dynamics of learning-related interactions. Balanced versus biased interpersonal cycles in generalization and stagnation of motivation patterns are discussed in this connection, and demonstrated by a case example. Brief remarks on multimodal person-situation transaction cycles and contextual variability conclude the chapter.

## Adaptive Learning: Systemic Motivational Orientation and Coping Perspective

A large body of research evidence exists on different motivational constructs (interest, goals, values, orientations), which have been used to depict individual differences (for reviews, see Urdan & Maehr, 1995) and have strong relevance to students' educational outcomes (see review, e.g., Wigfield et al., 1998). These constructs and their concomitants undoubtedly deserve conceptual and empirical attention in the future. However, we argue that when the ultimate goal is to reconstruct learning environments to fit all learners, and to help modify social, learning-related interactions among participants in these environments, a more holistic understanding on motivation in learning is also necessary. Individuals learn and develop over a long periods of time in social and cultural contexts, sharing fundamental experiences and learning outcomes, but they also have unique roles, perspectives, and interpretations in these situations that cannot be reduced to socially shared cultural experiences (e.g., Volet, Vauras, & Salonen, submitted). Along with socio-constructivist views, the recognition of the importance of social influences on learning and motivation has increased (e.g., Eccles, Wigfield, & Schiefele, 1998), and a growing number of scholars have incorporated social constructs into models of motivation (e.g., McCaslin & Good 1996; McCaslin, 2004) and made serious attempts to understand motivation in context (e.g., Volet & Järvelä, 2001; see also Vauras, Salonen, & Kinnunen, 2008).

The aim to understand individuals' complex long-term and socially embedded development, behavior and behavioral outcomes challenges researchers to constantly reassess and refine their methodologies. Conventional methodological approaches addressing "static", unidirectional or linear relationships between isolated variables cannot provide a sufficient basis for understanding the complexity and bidirectional, non-linear dynamics and cumulative processes of behavior-in-context. In particular, when the long-term goal is to reconstruct learning environments to fit all learners, and to help modify social, learning-related interactions among participants, methodologies that help us to gain a more holistic understanding on motivation in learning is needed.

### Integration of Theoretical Views and Multi-Method Approach as a Basis of Orientation and Coping Model

At the end of 1970's, Salonen, Lehtinen and Olkinuora (e.g., Olkinuora & Salonen, 1992; Salonen, 1988) conceptualized a triadic, integrated model of motivational orientations comprising basic motivational orientation dimensions and corresponding sets of coping strategies. These orientations (*task, ego defensive, and social dependence*) were derived from three adaptive goal dimensions, which are established during children's learning and social reward or control histories, and they all can be characterized by their focal adaptive focus (task, self, and guiding other, respectively) and the constellation of self-efficacy beliefs a person assigns either to situational or learning features. Since early development of the model, Salonen and his colleagues have gradually elaborated the model to better cover the developmental, multimodal, contextual and interpersonal dynamics in learning

situations (see, e.g., Lehtinen et al., 1995; Salonen, Lehtinen, & Olkinuora, 1998; Vauras, Salonen, Lehtinen, & Lepola, 2001; Vauras et al., 2008). The orientation and coping model described the learner's fundamental alternatives for orienting and adapting to interpersonal learning settings (e.g., Olkinuora & Salonen, 1992; Salonen, 1988; Salonen et al., 1998). This original triadic orientation and coping model was based on: (1) classic *psychological theories* of K. Lewin and A. R. Luria focusing on the motivational-emotional tensions and conflicts contributing to the dynamic organization and disorganization of behavior in learning situations (Barker, Dembo, & Lewin, 1941; Lewin, 1935; Luria, 1932); (2) *social psychological* (communication) theories of co-orientation, such as ethno methodological conceptualizations by H. Garfinkel (1967) and A. Cicourel (1973), models of interpersonal balance by T. Newcomb (1953), F. Heider (1958) and R. D. Laing (Laing, Phillipson, & Russell, 1966) or consensus by T. Scheff (1967; for a review see Siegrist, 1970); and (3) conceptualizations of *motivation and coping* distinguishing between task-focused / mastery oriented (intrinsically motivated), ego-focused / helpless, and socially focused (extrinsically motivated) modes of motivation and coping behaviors (see, e.g., Diener & Dweck, 1978; Harter, 1978; Lazarus, Averill, & Opton, 1974; Nicholls, 1979; White, 1959).

Our basic intention was to understand cognitive, motivational and emotional processes within a wider context of interpersonal relationships and adaptations (learner – guidance giver – learning task), and to explain the situational organization versus disorganization (progressions vs. regressions) of learning activity as a function of task-oriented and non-task-oriented adaptive goal structures and motivational-emotional tension systems. Balanced dyadic co-orientation and motivational interpersonal symmetry were assumed to maintain the learner's organized task-focused activity, whereas lack of dyadic co-orientation and rigid interpersonal motivational asymmetries or emotional tensions (e.g., the learner's excessive tendency to appeal the guidance giver and/or to protect his/her own ego) were hypothesized to yield to the disorganization of task-focused behavior (for more details and empirical evidence, see Lepola, Salonen, Vauras, & Poskiparta, 2004; Olkinuora & Salonen, 1992; Salonen et al., 1998; Vauras et al., 2001).

The construction of the model resulted from an interplay between the above mentioned theoretical ideas and empirical research. Although theoretical and technological developments from 1970's to the present have allowed us to adopt gradually more sophisticated and economical research methods, we have, right from the beginning, employed a multi-method research approach. This includes instruments and methods to tap the complexity of real-life, dynamic and socially embedded human motivation, emotion and learning. There have been three main qualitative focuses of our methodological approach: (1) learners' in multiple relations (e.g., teachers, parents, peers, types of tasks, subject-matter domains) and contexts of activity (e.g., learning, problem-solving, individual, collaborative); (2) change of learner's behavior across different contexts and behavioral changes as related to contextual factors; and (3) multimodal intrapersonal dynamic relationships, for example, between motivational, affective and behavioral processes.

Through a rigorous multi-method approach, we better understand the learner as a whole- person-in-context (for concept, see e.g., Boekaerts, 1993), that is, as a person with learning processes and outcomes strongly dependent not only on cognitive and metacognitive skills but also on socio-emotional goals, motivations and coping tendencies inter-

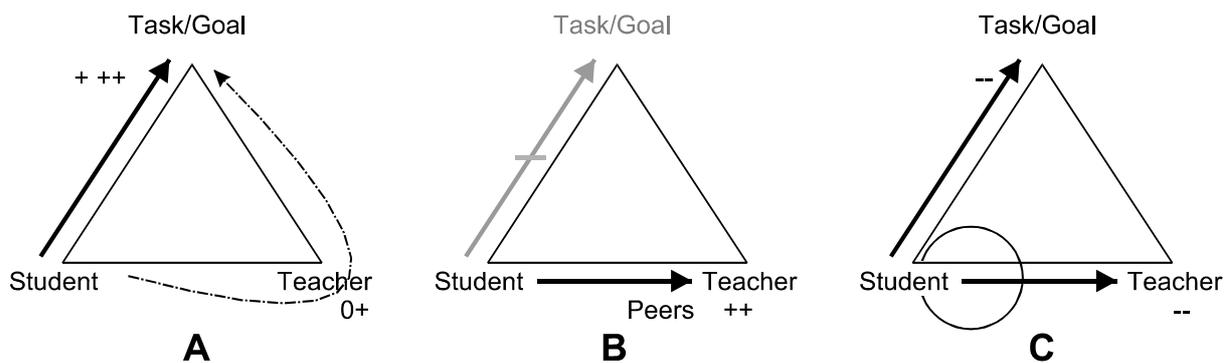
acting with the affordances and constraints of the learning environments. This approach is appropriate for an integrative and context-driven theoretical approach, which embeds learning and learning problems in a broader context of adaptation and functional relationships between person and learning environment. As examples, in our early studies these methods could consist of: (1) conventional “static” measurements of and motivational and emotional dispositions (e.g., scales for sense of control and self-concept of attainment; Nicholls, 1978) intended to reveal motivational and socio-emotional dispositions and long-term developmental changes; (2) dynamic on-line assessments of motivational and emotional changes during extended series of task performances leading to recurrent experiences of failure (or success) resembling typical school practice and test task sequences and supposing to reveal differential motivational regulation patterns in vulnerable and resilient children (e.g., applications of Lewinian level of aspiration test; Hoppe, 1930); and (3) dynamic on-line assessments of behavioral stability and variation across varying performance contexts (special needs teaching, parent guidance, test-taking), aiming to reveal recurrent affect- or motivation-related micro-genetic transaction patterns in different student-adult-task settings leading to “regressive” disorganization or “progressive” organization of cognitive performance and to determine how generalized or restricted such dynamic patterns are across different tasks and interaction contexts. Our on-line assessment procedure was a modern application of the pioneering work of Luria (1932) and Lewin and his colleagues (e.g., Barker, Dembo, & Lewin, 1941) addressing affect- and motivation-related changes in the dynamic organization versus disorganization of cognitive activity.

In sum, we have used both on- and off-line methods in combination, which may include a variety of mixed methods, such as observations, interviews, measurements and scales from multiple perspectives, competence assessments, psychological tests, and experiments (e.g., eye-movement studies). We have also aimed at quantifying the qualitative data to empower analyses and generalization of outcomes and to manage complex relationships with either larger numbers of participants or observations (e.g., pattern units in interaction). Often our studies have been conducted within longitudinal and (quasi-experimental) intervention designs. Today, there is a promise of approaching methodologies (e.g., Anolli, Duncan, Magnusson, & Riva, 2005; Hollenstein, 2007; Steenbeek & van Geert, 2007) and digital technologies (e.g., Koch & Zumbach, 2002; Lamey, Hollenstein, Lewis, & Granic, 2004; Nummenmaa & Nummenmaa, 2008), which importantly widen possibilities for in-depth analyses of real-life motivation and emotion and offer faster and more economic solutions to otherwise laborious dynamic multi-method research attempting to reconstruct and model the real-life situations.

## **Triadic Motivational Orientation and Coping Model in Socially Shared Learning Contexts**

The basic triadic relational orientation and coping model consists of core elements of the socially guided or joint learning situation: the learner, the instructor (e.g., teacher, parent or peer) and the learning task with a curriculum-based learning goal. The three modes of motivational orientation, Task Orientation, Ego-Defensive Orientation and Social De-

pendence Orientation, describe the different ways learners may become motivationally and emotionally sensitized or “attuned” to different aspects of the learning situation, and their different ways of coping with such demands. Each orientation can be characterized by its adaptive focus (Task, Self, Instructor), its activated major functional system (Approach, Avoidance) and its constellation of self-efficacy beliefs and emotional indications (Lepola et al., 2004; Salonen et al., 1998; Vauras et al., 2001; Vauras et al., 2008). In Figure 1, the basic activity structures in these orientations are captured.



**Figure 1.** Basic activity structures of motivational orientations.

In our triadic model of motivational orientation and coping (for details and developments, see Lehtinen et al., 1995; Lepola et al., 2004; Olkinuora & Salonen, 1992; Salonen, 1988; Salonen et al., 1998; Vauras et al., 2001; Vauras et al., 2008), a distinction is made between task-oriented versus two types of non-task-oriented behavior, ego-defensiveness and social dependence. These three groups of behavior with distinctive motivational foci and approach/avoidance characteristics represent different dispositions to cope with learning and performance situations. In task-oriented coping activity, the learning task and task-related novelties and challenges have a strong positive valence for the student engaging in persistent mastery efforts (see Figure 1, panel A). In social dependence-oriented coping, the student has no genuine motivational relation to the learning task, as his or her main focus is to seek social approval as a means for reinforcing social affiliation. The guiding adult and often peers possess a strong positive valence inducing, for example, excessive help seeking and imitateness (see Figure 1, panel B). In ego-defensive coping, the task (and often the guidance-giver) possesses a negative valence as the student tries to protect his or her self from threats and the loss of well-being, for example, through engaging in avoidance behavior or substitute activities directed toward some substitute goal with a strong positive valence (see Figure 1, panel C).

Like dichotomized conceptualizations of motivational orientations, which we have ourselves criticized (e.g., Vauras et al., 2001), our triadic model has often been interpreted as representing trait-like entities despite efforts to underline its dynamic features (see, e.g., Lehtinen et al., 1995). This interpretation is easy to understand, though, particularly from the point of view of the teacher. It is evident that experiences in home and traditional school environment may result in a limited set of more or less generalized and stabilized motivational tendencies, which are further reinforced in succeeding situations, finally becoming stagnated. In the school context, many students' coping behaviors have, thus, become repetitive in nature, manifesting as a certain more or less generalized orientation

to learning. It must be marked that this does not indicate that these tendencies are trait-like, but essentially *interactionist and dynamic*. They characteristically mirror the strength of the coping and orientation tendency, and are not exclusive but may fluctuate within and across situations and contexts. However, this common (from our point of view, mistaken) interpretation and criticism has forced us to more distinctly analyze the manifestation of motivational coping and orientations across contexts and over time and link them to long-term developmental, situational interaction dynamics (i.e., micro-genesis) and contextual and institutional-cultural (macro-level) factors (e.g., Lehtinen et al., 1995; Olkinuora & Salonen, 1992; Salonen et al., 1998; Vauras et al., 2001, 2008).

Observation and intervention studies have provided evidence for tracking micro-genetic fluctuations in students' coping efforts and possibilities to modify the situational interpretations and coping efforts, which eventually are expected to lead to changes in orientations as well. Failure to powerfully influence, in particular, some highly vulnerable students' interpretations and coping behavior, have further forced us to scrutinize the actual dyadic or polyadic interactions between a student, peers and a guiding adult (parent or teacher) in learning and instructional settings. Next, we briefly describe the evidence from our studies to give empirical grounds for the elaborated integrative model, which illustrates our current conceptualization of micro-genetic (situational) and long-term developmental dynamics of learning-related multimodal person-situation interactions.

## **Generalization, Variability and Modifiability of Motivational Coping and Orientations**

We have proposed that the disposition toward any of the three orientation and coping tendencies discussed above is formed during children's learning and social control/reward histories in family, day-care contexts and early school years (Vauras et al., 2001; see also Lepola et al., 2004), and is actualized in certain sets of forthcoming learning situations with similar cues (Salonen et al., 1998; Salonen, Lepola & Vauras, 2007). Recent dynamic systems conceptualizations strongly support this assumption (e.g., Dumas, Lemay, & Dauwalder, 2001; Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Lewis, Lamey, & Douglas, 1999; Martin, Fabes, Hanish, & Hollenstein, 2005). Further, theories of interpersonal or relational control (e.g., Rogers & Escudero, 2004) shed light upon the situational and developmental mechanisms contributing to the gradual formation of inter-individual differences in motivational orientations and socio-emotional coping patterns (Salonen et al., 2007). The dynamic systems view suggests that cumulatively differentiating developmental trajectories of motivationally-emotionally vulnerable (low-achieving) and resilient (high-achieving) children are based on early parent-child and, later, teacher-child dyadic regulations which have become repetitive (see Fagot & Gauvain, 1997; Gauvain & DeMent, 1991; Granic & Dishion, 2003; Hollenstein et al., 2004; Salonen et al., 2007). Gradually these interactions build up different developmental trajectories for the dyads, as well as differentiating socio-cognitive and motivational-emotional developmental paths and outcomes for the children.

## Long-Term Cognitive-Motivational Development: Stabilization and Accretion

Individuals differ as regards their resources to cope with environmental challenges, complexity and change (Cowan, Cowan, & Schultz, 1996; Murphy & Moriarty, 1976). Individual differences, which can be detected on early age, between at risk (or ‘vulnerable’) and resilient students are hypothesized to contribute to the educational *polarization phenomenon* manifested in the vastly diverging developmental trajectories of steadily progressing and retarding student groups. A wide and hard-to-reduce gap between high- and low-achieving students—in terms of cognitive competence, motivation, self-beliefs and school attitudes—evidencing of cumulative diverging developmental courses is reported, not only within tracked school settings (as originally tested; see, e.g., Berends, 1995; Urdan, Midgley, & Wood, 1995) but importantly also in mainstream, desegregated and heterogeneous classrooms (e.g., Fuchs & Fuchs 1994; Semmel, Gerber, & MacMillan 1994; see Stanovich 1986 on the ‘Matthew effect’). In line with this, our own earlier work presents empirical evidence for cognitive-motivational and socio-emotional development and, further, interactions underlying the polarization phenomenon within the school context (Lehtinen et al., 1995; Salonen et al., 1998; Vauras et al., 2001). Our evidence stems, primarily, from longitudinal studies of reading and text comprehension skills in elementary school, as illustrated below.

Vauras, Kinnunen and Kuusela (1994) followed high-, average-, and low-achieving students for two years from grade 3 to grade 5 (i.e., from age 9-10 to age 11-12), during which time their text-processing skills were measured. Already at the start, an extensive gap between low-achieving and other students’ text comprehension was observed. This differential development in students’ comprehension skills seemed to create a widening achievement gap, most strikingly between low- and high-achieving students. It was concluded that, when low-achieving students are confronted with rapidly increasing task and learning demands, they have accumulating difficulties in responding to these demands successfully because of their inadequately developed text-processing and metacognitive strategies. Converging evidence came from the study by Lepola, Vauras and Poskiparta (2002; see Lepola et al., 2004), in which the polarization phenomenon between the reading groups was observed across the school years (from grade 2 to grade 8). This phenomenon was portrayed as a growing achievement gap between prospective good and poor readers. In fact, poor, average, and good reading careers started clearly to diverge from grade 3 and onwards. The intervention studies, aimed to empower low-achieving students’ mathematical and reading competences, tell the same story when we compared control and all other students’ development (e.g., Kajamies, Vauras, & Kinnunen, in press; Vauras et al., 1999a, b).

The long-term relative regress observed in low-achieving students’ competencies is multimodal in nature, evident on top of cognitive competences in emotional responses to learning and performance situations, and in coping efforts and motivational dispositions, entrapping students into a vicious developmental cycle. Lepola et al. (2002, see Lepola et al., 2004) showed the strong relatedness of motivational tendencies to the reading achievement of prospective reading groups. The results revealed that the poor readers had a significantly weaker task orientation and higher non-task-orientation (ego- and/or social

dependence) already in grade 1 than the prospective good readers. Increasing and stabilizing differences in task-orientation were observed from grade 1 to grade 8.<sup>1</sup> The opposite motivational patterns interacting with reading comprehension differences across school years seemed to co-determine favorable and unfavorable learning trajectories (Schneider, Stefanek, & Dotzler, 1997, as cited in Lepola et al., 2004; Schultz & Switzky, 1990).

Although it must be kept in mind that these results concerning longitudinal development reveal average cognitive-motivational paths, for many, in particular low- and high-achieving students' prior to school and early school years, patterns are strongly predictive as regards later development. The problem of generalizing motivational dispositions and cognitive deficiencies become even more unwavering in the light of results indicating strong co-morbidity, indicated as multimodal accumulation effects. For example, early reading and writing problems may later manifest also as difficulties in reading comprehension, composition, foreign language learning and mathematics. Vauras, Junttila, Iiskala, Kajamies, Kinnunen and Kaukiainen (2003; for measure, see Junttila, Kaukiainen, Voeten, & Vauras, 2006) presented results on accretion of higher order learning difficulties in the follow-up of over 1000 elementary school students, showing how linguistic (decoding and reading comprehension) and mathematical (number, arithmetic and word problem solving skills) were intimately linked in the groups of low- and high-achievers from grade 3 onwards. The results concerning the same students in the study by Vauras and Junttila (2007) showed, further, strong relationships between social competence and cognitive school performance in reading and mathematics. The profiles of the manifold proficient and unskilled students formed a mirror image in terms of social skills (such as co-operation skills, empathy, control of impulsive and disruptive behavior), and loneliness of the students with linguistic and mathematical difficulties. These results are in accordance with evidence in the research literature showing how cognitive competence is associated not only with students' motivational competence, but has also wider social dimensions, such as loneliness, self-esteem and social skills, which contribute to learning and motivation processes (see e.g., meta-analysis by Kavale & Forness, 1996).

## **Scaffolding and Interpersonal Transactions in Teaching-Learning Contexts: Modifiability of the Motivation-Related Behaviors**

In light of the evidence implicating a widening cognitive-motivational gap between different student groups over the school years, possibilities of intervening accumulating learning problems and emotional-motivational vulnerability become pertinent. Along with increased educational demands, the observed distinctive developmental paths have intensified the discussion on resilience or resistance in learning. When we consider the possibilities of influencing predicted cognitive-motivational development, it is important to keep in mind that although coping and orientation tendencies may become highly

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<sup>1</sup> In the light of increasing learning demands and increasing negative school attitudes, it is interesting to note, though, that general increase of ego-defensiveness from 6th to 8th grade washed out differences in this respect at the 8th grade.

dominant they are not exclusive. Considerable fluctuation between task- and non-task-oriented coping behaviors can be found even among vulnerable low-achieving students. Therefore, an analysis of frequency of task-oriented behaviors and features triggering task-oriented behaviors helps us to form a basis for remedial instruction. Although as such this is almost an impossible research task due to demands for numerable observations in different learning tasks and contexts, the mere information on occurrence of task-orientation in low-achieving students' learning-related behavior have proven to be of key importance.

Teacher scaffolding is assumed to provide learners with unique opportunities to remedy their cognitive-metacognitive deficits in specific domains of learning. Scaffolded instruction (Wood, Bruner, & Ross, 1976) is strongly congruent with the Vygotskian theoretical framework (Vygotsky 1962, 1978). In an optimal instructional interaction, the teacher determines the student's "region of sensitivity to instruction" and, through graduated intervention, "adjusts the scaffolding to the child's developing capabilities" (Rogoff & Gardner, 1984, p. 101). In each phase of skill development, the learner is given appropriate supportive tools, which, building on the already formed capabilities, provide a sufficient framework for reaching the next skill level and closing the gap between the actual developmental level and task requirements. The process of scaffolding is essentially interactive and reciprocal. Participation in this social form of regulation is particularly useful to enrich the range of strategies that learners can use, and to power their capacity to use them strategically and autonomously. We have earlier hypothesized (e.g., Vauras Rauhanummi, Kinnunen, & Lepola, 1999b) that low-achieving students need carefully designed, innovative, flexible and adaptive special support environments to dismantle their maladaptive beliefs and interpretations and to strengthen their competence. Therefore, the first steps should be taken in environments not resembling the typical contexts where negative anticipations and interpretations are automatically triggered. The effectiveness data from our intervention studies, embedded, for example, in game-like environments, have supported this assumption. The cognitive domains in our intervention studies have been reading comprehension and/or mathematical word problem solving.

In the study by Vauras, Lehtinen, Kinnunen and Salonen (1992; see also Lehtinen et al., 1995), a 32-hr cognitive-motivational intervention program for fourth-grade, 10- to 11-year-old students with learning difficulties was applied. After the small-group intervention, an experimental classroom program was designed to examine the post-intervention conditions for the attained skills. Significant average improvement was obtained, and in the condition where both cognitive-metacognitive and emotional-motivational coping strategies were explicitly trained, long-term transfer effects were also found. The group-level results from later intervention studies with third-grade (Vauras et al., 1999a, b) and fourth-grade (Kajamies et al., in press) low-achieving students have yielded similar, highly significant training effects.

However, despite the use of ideas behind transactional dialogue (e.g., Pressley et al., 1992) and, in general, powerful learning environments and apprenticeship models (e.g., for discussions, see De Corte, Verschaffel, Entwistle, & van Merriënboer, 2003) in designing and carrying out special needs intervention programs and typically a rather long time allotted to instructional efforts, some students still show strong resistance to instruction and often fail to benefit from teacher (or peer) scaffolding. The recurring resistance

patterns in some sub-groups have caused us puzzlement since they are apparently persistent even in circumstances where, for example learning takes place at a relaxed pace in small groups, the learning environment is appealing, including age-relevant attractors such as game-like contexts, students are willing and to participate in the activities and to invest their efforts, systematic, well-organized cognitive-metacognitive, yet personalized, training is offered, and constant teacher scaffolding is available.

In all of our intervention studies, we have found a group of students with no evident progress in their cognitive-motivational competencies. For example, in the study by Vauras et al. (1992) long-term maintenance and transfer were dependent on the students' motivational coping tendencies; some initial task orientation required for these effects. Weakest training effects were achieved in students who displayed dominantly ego-defensive tendencies, and only short-term effects were achieved in students with strong tendencies to cope in learning situations through social dependence. However, when prolonged classroom training was provided, even students with low initial task orientation and maladaptive coping tendencies began to show more lasting training effects and transfer of learning. In the study by Vauras et al. (1999a, b), developmental data showed that the resistant and responsive groups differed significantly in two crucial aspects prior-to-training, that is, already at the first grade two years before: metacognition (particularly comprehension monitoring) and non-task orientation (particularly social dependence). All in all, we have been able to conclude that long-term, stabilized motivational and emotional vulnerability accompanied with social and self-regulatory ineffectiveness severely interfere with students' ability to benefit from instruction. We will illustrate the interaction and motivational vulnerability dynamics contributing to this kind failure with three cases from the intervention study by Vauras et al. (1992).

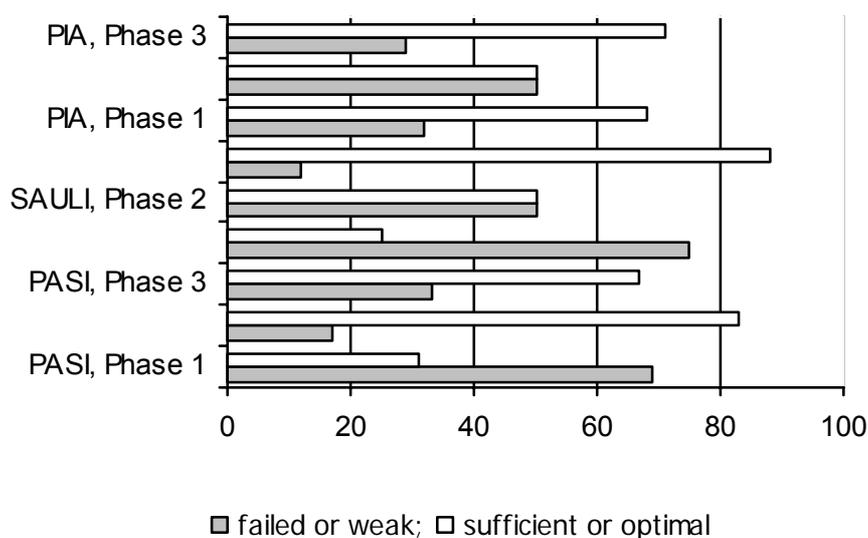
## Case Examples: Vulnerability in Resistance Dynamics

As a part of the intervention study by Vauras et al. (1992), we analyzed students' on-line behavior, and behavioral fluctuations and changes in relation to scaffolding. Since these results are not reported in Vauras et al. (1992), we give an account of the main results relevant to the discussion in this chapter, concentrating on three representative cases. The two boys, *Pasi* and *Sauli*, performed poorly on cognitive and metacognitive measures (in most, below average among struggling learners), and showed ego-defensive avoidance behavior in many performance situations, manifesting as tension, anxiety and restlessness. The girl, *Pia*, showed both social dependence and ego-defensive coping behaviors in the face of academic tasks, and performed similarly very poorly in cognitive and metacognitive measures.

Our analysis was targeted on the phase where practicing and teacher scaffolding took place. In this phase, first, the given skills were practiced by a series of exercises, progressing from relatively familiar contents and simple text structures to more unfamiliar contents and complex structures. Thus, the task demands increased progressively both within each session and along the intervention. In some exercises, either self-guided or collaborative practicing was enhanced by role-taking instructions to increase task involvement. In some tasks, thinking aloud while performing an exercise was encouraged. After a se-

ries of short exercises or after one complex task, the students were stimulated to verbally describe the procedures and strategies they had used. This articulation of a student's own task performance and solutions served as a basis on which the scaffolding dialogue was initiated. The student's spontaneous ability to perform a task and to verbalize solution strategies determined the level of adult guidance. The teacher reworked the task with the students and reconstructed the reasoning and comprehension processes involved in the task solution in scaffolded discussions. With increasing student ability, the gradual fading of assistance and simulation by others was aimed at fostering the growth of self-regulation.

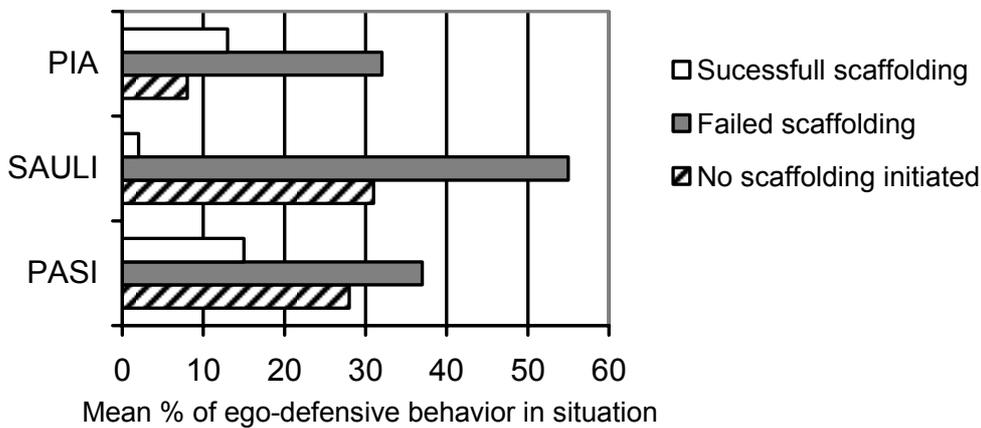
The scaffolding dialogue was initiated by the teacher most frequently in the situations where the student's spontaneous verbalizations were reasonably low; that is, the student gave impulsive, mindless descriptions or inexact descriptions of his/her own task solution. In general, the scaffolding dialogues had a beneficial impact on the students' understanding of the strategies. It was evident, though, that the scaffolding could not always be accomplished to the optimal or even satisfactory level (see Figure 2). *Pia* manifested patterns where scaffolding gains were evident already in the beginning phases of the training, whereas *Pasi* and, even more pronounced, *Sauli*, showed very poor scaffolding results in the first training phase and began to improve slowly only in the second phase, that is, after approximately 10 hours of training.



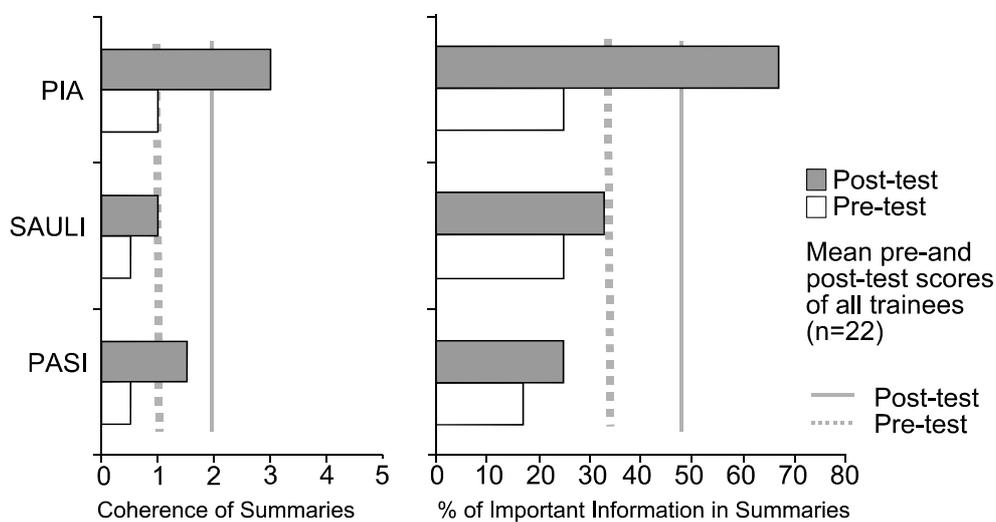
**Figure 2.** The percentages of successful and failed scaffolding dialogues.

The success of scaffolding importantly coincided with the degree of non-task-oriented behavior. As shown in Figure 3, the students, when demonstrating weak or failing scaffolding, typically manifested a high degree of ego-defensive (EO) behavior. In instances where the teacher failed (or failed to start) the instructional discussion, the students often showed a high degree of ego-defensive behavior. Successful scaffolding took place, when the students' level of ego-defensiveness was low. Most strikingly this can be seen in the case of *Sauli*. This finding is in accordance with the assumption that low-achieving students' socio-emotional vulnerability inhibits or slows down cognitive progression. Finally, the above on-line observational data can be contrasted with the immediate effects

of training, assessed by the summarization task, measuring vertical transfer of training (see Figure 4). The students were asked to write a good summary of comparable, unfamiliar texts on history before and immediately after the training. These results are highly in accordance with the data obtained by the process analyses, showing most pronounced improvements in the skills of *Pia*, and low gains for *Pasi* and *Sauli*. Thus, slow process in instructional discussion was strongly associated with low cognitive gains.



**Figure 3.** Mean percentages of ego-defensive coping behavior during failed and successful scaffolding and in instances when no scaffolding was initiated with the student.



**Figure 4.** Gains in reading comprehension skills as a function of intervention.

## Towards Analysis of Interacting Participants as a Way to Understand Motivational Stability and Resistance Patterns

The results of our process-oriented analysis throughout different stages of the scaffolding process evidence a sequence of cognitive – socio-emotional interactions, that is, a micro-genesis indicating difficulties in scaffolding. The general results concerning the resistance patterns of multiply vulnerable students have shifted our attention more closely to the