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Oana Negru

# GROWING UP TO BE THE BEST

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ACHIEVEMENT MOTIVATION  
IN THE TRANSITION TO ADULthood

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*Părinților mei, cărora le datorez totul*  
*For my parents, to whom I owe everything*



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# FOREWORD

Socio-economic and cultural developments during the last decades have generated an interesting mutation in the life-span of human beings: the emerging adulthood. Also called “arrested adulthood” or “contestable adulthood”, this is a post-adolescence period characterized by increased personal instability, postponement of traditional roles for adult life (financial independence, family commitment, labor market involvement), and extensive exploration of self-identity. Hence, nowadays the transition from adolescence to adulthood takes longer than a few decades ago. In this context, the present book raises several critical questions: How do emerging adults develop their teleological dimension? How do they integrate mastery goals (learning goals) with performance goals, achievement motivation and personal growth? How do they mitigate the need for competence development with the need for competence demonstration? The author of this book, a young and brilliant researcher, offers the very first investigation on emerging adulthood in the Romanian population, using a combination of experimental, ecological, and idiographic methodologies to produce a substantial amount of original and evidence-based findings.

The research outcomes cover a large array of topics, difficult to summarize here, but some hints could be illustrative. She proved, for example, that in highly competitive tasks, mastery goals do not lead to high performance indicators in the same extent as performance goals. In other words, when one competes against a competitor, he should aim at demonstrating his competences, rather than focusing on self-improvement. However, if one aims at increasing task persistence and satisfaction, he should better use mastery goals rather than performance goals. Relying on a subtle distinction between performance indicators and performance contingencies, the author has succeeded in demonstrating the differential impact of goals on these aspects of an activity. Moreover, she proved that online feedback about ongoing performances of a competitor, during task involvement, has a negative impact upon one’s performance; so, one better avoids searching for such feedback, and should rather focus on inner standards or task requirements.

The book is full of practical implications, which makes it a reference not only for those interested in knowledge-production (researchers), but also for those interested in knowledge-exploitation (practitioners).

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# INTRODUCTION



A LONG(ER), GOAL ORIENTED,  
ROAD TO ADULTHOOD





Times have changed. Today's youth has a longer time to linger in self-exploration and identity development. They spend more time in protective educational settings, and are largely financially supported by their families and/or by specially designed social systems (Arnett, 2010). They generally function in a society which "allows" them to be "protected" citizens, being given access to special social services (e.g. no taxes to pay, free medical assistance, and reduced fees for a variety of social services). Pressure to achieve classical developmental tasks like marriage, child bearing, or financial self-sustenance is also highly reduced (Arnett & Tanner, 2006). Hence, transition from adolescence to adulthood is a much longer process for many young people around the world. Psychological research in the first decade of the XXIst century has largely focused on the age cohort 18-25, in order to better understand the characteristics of this prolonged transition to adulthood (for a review, see Arnett, 2011).

Variouly called emerging adulthood (Arnett, 2007), contestable adulthood (Horowitz & Bromnick, 2007), arrested adulthood (Cote, 2000), this developmental period is greatly framed and determined by changes in demographic, social, and economic dynamics. These changes impose modifications in growth rates of personal attributes and processes. After extensive quantitative and qualitative research, Jeffrey Jensen Arnett (2010) has extracted that some of the youth in industrialized countries go from adolescence to what he has defined as emerging adulthood, before they enter young adulthood. Demographically, subjectively, and in terms of exploring identities, emerging adulthood is a new developmental concept, spanning from the late teens through the twenties, with a focus on ages 18-29. This distinct period of life has emerged due to: (a) *increases in the time individuals assign to pursuing higher education*; (b) *profound changes in how young people view the meaning and value of work and becoming an adult* and hence enter adult roles of worker, spouse, and parent; (c) *changes in gender roles*, which are linked to an increase in the age of marriage and parenthood in the last half of the XXth century (Arnett, 2007, 2010).

Emerging adulthood is an international phenomenon and characteristic demographic changes (increased participation in higher education, rising average age of marriage, and parenthood) can also be identified in the Romanian society. Firstly, participation in higher education has greatly expanded in Romania. From 2000 to 2007, the number of Romanian youth enrolled in a higher education

programs increased from 13.7% to 27.95% for ages 18 to 24, went up four times for ages 25 to 29 and three times for ages 30 to 34 (Raport asupra Stării Sistemului Național de Invatamant, 2008 - Ministerul Educatiei, Cercetarii si Tineretului). This could be an indicator of dispersion in emerging adulthood, as the pursuit of higher education often includes identity explorations. Secondly, the average age for the first marriage in Romania in 2005 was 25.2 years for women and 28.5 years for men and is still rising. However, the marriage rate in Romania is above the marriage rate in Europe. Even if in Romania the mother's age on her first birth is lower than in most other European countries, a tendency for postponing parenthood has been noticed, from an average age of 24.2 at the first birth in 2003 to one of 24.9 in 2005 (EUROSTAT- Statistical Office of the European Commission).

In this complex map, individual characteristics of emerging adults are shaped according to age-graded requirements, school-normed contents and teaching-learning strategies, work experiences and personal life events. Typical developmental tasks for young adults, as initially defined, are: choosing an occupation, selecting a partner, starting a family, having children, finding a congenial social group (Ebner & Freund, 2007). Arnett (2010) considers that emerging adults have other specific normative criteria for their development, as compared to the classical young adult and they refer to: *accepting responsibility for one's self, making independent decisions, and becoming financially independent*. Roisman, Masten, Coatworth, and Tellegen (2004) point out that emerging adults often approach age-graded tasks with a *focus on experimenting which role is more appropriate for their interests and capacities in certain contexts*. Therefore, this type of peculiar approach reflects the personal goal of finding one's place in life and idiosyncratically specifies the value attached to pursuits of developmental tasks. In light of these changes in developmental dynamics, *specific contexts determine specific developmental demands*, whose normative influence will be further refined by the individual *in idiosyncratic personal goals* (Negru, 2008).

Arnett (2010) identified the five main features of emerging adulthood as: (a) *identity exploration*; (b) *instability*; (c) *most self-focused age*; (d) *age of feeling in-between adolescence and adulthood*; (e) *age of possibilities*. In the past decades, the transition to adulthood has been marked by some specific characteristics such as: accepting responsibility for oneself, making independent decisions, becoming financially independent, learning to stand alone as a self-sufficient person, avoiding behavior that might harm others. The traditional requirements of young adulthood, such as finishing education, beginning full-time work, and marriage, are not relevant for many individuals in this age-group (Beal & Crockett, 2010). *Research on these dimensions in Romania represents a necessary and innovative endeavor*, as the preparation of our youth for the expectations and demands of being an adult, has an immense value, both from an educational and an economic perspective.

Most of the existing research on emerging adulthood has focused on identifying characteristics of transitions to adulthood in different life domains (e.g. education, work, political involvement, spirituality), or in specific areas of individual functioning (e.g. mental health, identity development, intimacy,

relations with peers and parents). Emerging adults have diverse and unstable school and work patterns, encompassing different types of schools and school-based experiences, and different work experiences (work type, work length). Emerging adulthood exists today mainly in the industrialized or post-industrial countries. It is not a universal stage of human development, but one that exists under certain conditions in some cultures. Not all young people have the same period of time for exploring life options. Some of them live in conditions of deprivation; others may not experience emerging adulthood because of specific life circumstances (e.g. a young woman with a child outside the marriage, a distinct cultural split between urban and rural areas). Hence, *emerging adulthood is a characteristic of cultures, rather than countries*. Opportunities tend to be less widely available in minority cultures than in the majority culture (Arnett & Tanner, 2006). Also, social class seems to be more important than ethnicity. *Young people in the middle class or above have more opportunities for exploration* of emerging adulthood than young people who are of working class (Osgood, Foster, Flanagan, & Ruth, 2005).

Schwartz, Cote, and Arnett (2005) have convincingly demonstrated that agency and intentionality in transitions to adulthood represent very important dimensions in understanding this developmental stage. Opportunities for exploration and personal self-actualization are more complex in the age-frame 18-25 for young people that remain in the educational system. Hence, development of identity structures and processes, of social interaction and relational skills, or of career development abilities (to name but a few dimensions) are greatly influenced by individual capacities to set and pursue personal goals.

When young people have the chance to develop in a protected environment, which patiently awaits for them to emerge as adults, how do they develop as intentional and agentic beings? How do they set goals and embed motivational pursuits in their life? How do they grow to be the best... of whatever they are? These important questions regarding transitions to adulthood still have to be answered. Research studies must still focus on understanding the transition to adulthood from a more granular perspective, focused on in-depth analyses of motivational processes relevant in this time-frame. In this endeavor, the present book analyzes achievement motivation and personal goals in late adolescence and the transition to adulthood. We take a two-fold approach, based on both *experimental* and *idiographic* perspectives of *achievement and personal goals*. The central concept that guides our research is that of goals.

Goals are pervasive constructs in human existence. We project our actions in the future, aim at reaching outcomes, set standards, and create desired end states. We seem to organize our lives around the plans we make for ourselves, the goals we set, and the outcomes we expect. Individuals tend to project their development in terms of goals, intentions, or purposes. Are goals central to human behavior? Questions about human action in layman terms are almost always questions about goals, intentions, or purposes (Gorayska & Lindsay, 1989).

Contemporary psychological discourse defines goals as „internal representations of desired states, where states are broadly construed as outcomes,

events, or processes” (Austin & Vancouver, 1996, p. 338). Elliott and McGregor (2001) view goals as being not only oriented toward accomplishment of desired outcomes (approach goals), but also toward escaping dreaded outcomes (avoidance goals). Shah and Kruglansky (2003) conceptualize goals as knowledge structures, “that is, as cognitive representations characterized by particular contents and particular functions” (p. 1109). Goals are linked to the activation of specific cognitions and actions and they „bias behavior adaptively” (Gray & Braver, 2002, p. 295) when they dynamically adjust to situational conditions which shape levels of goal priority.

Definitions of goals denote a future finality or outcome. This is mentally construed in the present, aimed at increasing personal organization of resources for attainment of that outcome. There are multiple theoretical and methodological approaches of *goal contents, structures, and processes*, on different domains (eg., learning, health, work), and levels of analysis (for reviews on goal processes and structures see Austin & Vancouver, 1996; Carver & Scheier, 1998; Emmons & Kaiser, 1996; Fishbach & Ferguson, 2007; Locke & Latham, 2002). These theoretical or applied tenets reflect a Babel tower approach of goals, with many overlapping different concepts, a large array of postulated processes and different taxonomies of goal contents. It is difficult to construct an integrative view of human goals, because there are multiple levels of analysis, from molecular mechanisms to molar regularities, each offering complex information framed in multiple, often antagonistic theories.

From these complex approaches we view the following as *major statements regarding human goals*: (a) behavior is directed by the pursuit of goals; (b) goals are cognitive representations of outcomes (desired or feared); (c) goals influence and are influenced by evaluations, emotions and behaviors that are linked to goal structures, processes and contents; (d) goals are hierarchically organized in dynamic systems of superordinate and subordinate goals.

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# CHAPTER 1



## THEORETICAL APPROACHES OF GOALS: GLIMPSES ON ACHIEVEMENT AND COMPETENCE



The difference between *purpose goals* (WHY the individual engages in an activity) and *task goals* (HOW and WHAT the individual does in order to follow task requirements) has guided the construction and implementation of different theoretical approaches on human goal systems. The former line of research focuses on types of general orientations toward an activity, which guide the employment of specific cognitive, emotional, and behavioral responses, differentially affecting performance. The latter looks at how task structure and functionality can be mirrored in goal formulation and monitoring of goal pursuit.

Theoretical approaches on *human achievement orientations* try to capture different components of goal setting and goal processing. They revolve around the question of how achievement and competence are defined and constructed. Defining achievement first requires establishment of an analysis level for individual goals in an activity or class of activities. The dominant level of analysis, from both theoretical and methodological standpoints relies on achievement goals as *purpose goals*. Mapping achievement through *competence* development and demonstration offers a structural and process basis for what individuals strive when approaching competence relevant contexts. The mastery-performance orientations resume an important distinction in defining purpose goals. In this chapter we attempt an analysis of achievement orientations through the lenses of different theoretical approaches.<sup>1</sup>

We will first set the stage through analysis of the mastery-performance dichotomy, which was delimited as an important purpose orientation toward activities, through a differential focus on ability development versus ability demonstration. The concept of competence stands as key mechanism in understanding how achievement can be conceptualized and how different goal types emerge. We detail the relation achievement goals – performance through analysis of ability perceptions and specification of the role of goal valence (approach versus avoidance) in influencing performance outcomes.

Next, we focus on an analysis of achievement goals through the lenses of other goal models, which offer additional information on the mechanisms involved

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<sup>1</sup> Extracts from this chapter were previously published in *Economy. Transdisciplinarity. Cognition*. (Negru, 2009c).

in the relation achievement – performance. *Self-determination* approaches rely on tapping into goal structures and mechanisms which influence the development of intrinsic motivation, with a specific spotlight on individual autonomy in the selection and pursuit of achievement goals. *Self-efficacy theory* revolves around the idea of goal generation and monitoring in a discrepancy reduction and discrepancy creation cycle, focusing on the ways in which humans monitor the actions needed in order to attain a set goal. *Goal setting theory* elaborates on the requirements of goal construction and monitoring that lead to an adequate performance in real-life settings and focuses on behavioral prescriptions that enhance goal effectiveness.

Finally, we close the chapter by reuniting theoretical tenets from the above presented goal models, in order to specify important dimensions on achievement goal mapping when analyzing the relation between achievement and performance outcomes.

### 1.1 Achievement goals: defining competence

Goal orientation theories investigate and try to evaluate human achievement patterns. Achievement patterns are defined as purposes for behavior that are perceived or pursued in competence-relevant settings (Midgley, Kaplan, & Middleton, 2001). Theorists describe two dichotomous types of goal orientations or goal framing: (a) *the orientation towards ability development*, labeled as “mastery goals” “learning goals” or “task goals” and (b) *the orientation towards ability demonstration or avoidance of lack of ability demonstration*, labeled as “performance goals” “ego goals” or “ability goals” (Dweck & Leggett, 1988; Midgley, Kaplan, & Middleton, 2001; Nicholls, 1984). Mastery goals seem to focus the individual on the *task* at hand. They relate especially to the development of competence through personal understanding and insight. Performance goals focus the individual on the *self* and relate especially to how ability is judged and how one performs, especially compared to others. Both types of achievement goals are associated with different patterns of cognition, affect, and behavior and are inherently linked with the construction of competence (Dweck & Leggett, 1988).

According to Webster’s Revised Unabridged Dictionary and the Oxford English Dictionary, “competence” is defined through quality of effectiveness, ability, sufficiency, and success. In analyzing these keywords for defining competence, Elliot and Dweck (2005) take into account that competence is always evaluated against specific *standards*. Competence refers to different *levels and domains of functioning* and it involves differential *individual strategies* (cognitive, behavioral, and emotional) in approaching it. These authors consider that at a global level competence is best analyzed in relation with evaluation standards, which dictate and organize both task requirements and individual strategies. In the achievement goal framework (Elliot & Dweck, 2005), three main evaluation standards are identified:

- *an absolute standard*, which reflects the requirements of the task itself;



- an *intrapersonal standard*, referring to one's own past attainment or maximum potential attainment level;
- a *normative standard*, encompassing comparisons to the performance of others.

Competence can therefore be evaluated and defined according to whether one has: (a) acquired understanding or mastered a task (an *absolute standard*); (b) improved one's performance or developed one's knowledge or skills (an *intrapersonal standard*); (c) performed better than others (a *normative standard*).

Absolute and intrapersonal competence share many conceptual and empirical similarities and can often seem indistinguishable; for instance, learning new information represents both the mastering of a task and the development of one's knowledge. The distinction between absolute/intrapersonal and normative standards underlines that achievement is a multidimensional construct that includes doing well relative to task requirements and relative to others (McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938).

## 1.2 Achievement goals and ability perceptions

The term achievement goal was first integrated in mainstream psychological research with the works of C. Dweck (1975) and J. Nicholls (1976), both stemming from research of ability development and ability perceptions in school-aged populations.

### 1.2.1 Performance versus mastery orientation

The goal orientation construct has its roots in Carol Dweck's work on achievement motivation in educational settings, with an initial focus of learned helplessness in school learning (Diener & Dweck, 1978; Dweck, 1975; Dweck & Reppucci, 1973). Dweck and colleagues studied young children's motivational patterns in the classroom, and gradually extracted two distinct behavior patterns that can arise in response to challenging activities or obstacles in achieving high levels of performance. These patterns were defined as a maladaptive-helpless pattern and a mastery-oriented, adaptive pattern. On the one hand, the mastery-oriented pattern is associated with challenge-seeking and persistence when obstacles appear. On the other hand, the helpless pattern determines use of avoidance strategies when challenge situations appear and is linked with decreased performance when facing difficulties.

Interestingly, the relations between these behavior patterns and individual capacities indicated that highly skilled individuals can develop maladaptive patterns and vice versa (Dweck, 1975, 1989). When striving to explain why individuals of equal ability showed such different behavioral patterns, Carol Dweck and colleagues identified two classes of goals within the domain of intellectual achievement. They proposed that these goals create the framework within which individuals react to and interpret events. The two goal types are:

*learning* oriented goals, in which one strives to increase his competence, and *performance* oriented goals, in which one is concerned with gaining favorable judgments of his competence (Dweck & Elliott, 1983).

Goal orientation is conceptualized as an individual difference variable that states to what degree an individual is predisposed to either type of goals: learning goal or performance goal. Carol Dweck's work on goals was further developed into the research of how "implicit theories" (defined as people's basic assumptions about themselves and the world) guide the choice and pursuit of goals, defining incremental and entity theories of self, character and perceived intelligence. *An incremental theory* is related to mastery orientation of goals and focuses the individual on process analysis, mastery, and continuous self-development. On the other hand, *an entity theory* is related to performance goals and guides the individual towards evaluation, comparison with others, attribution of behavior outcomes to fixed and global internal or external causes (Dweck, 1996).

### ***1.2.2 Task-involved versus ego-involved orientation***

Nicholls (1976, 1978, 1980, 1984) analyzed achievement motivation in a similar manner to that proposed by Dweck (1975), focusing on how individuals construct and develop conceptions about their abilities. High levels of perceived abilities in approaching an activity were linked with increased learning and effort toward improvement. The development of conceptions about abilities was organized in Nicholls' (1984) conceptual system around two types of goals: ego goals and task goals. On the one hand, *ego-involved goals* are framed in terms of: "Will I look smart?" or "Can I outperform others?". Individuals with ego-involved goals seek to maximize favorable evaluations of their competence and minimize negative evaluations of competence. On the other hand, *task-involved goals* imply a focus on mastering tasks and increasing personal competence in domain specific activities. Task-involved goals are conceptualized in terms of: "Can I do this task?" and "What will I learn?" (Eccles & Wigfield, 2002; Nicholls, 1984).

Ego goals are associated with ability development in a *differentiated* manner, with a comparison criterion (the other) offering specific achievement levels. Task goals are linked with ability development in an *undifferentiated* sense, with individuals focusing on "mastering" or learning a given task, with intrinsically oriented affect, cognition, and behavior leading to individually crafted patterns of achievement. While task goal are defined as inherently intrinsic, ego goals reflect conscious evaluative effort in reaching an extrinsic performance criterion and are effective only when associated with high levels of perceived ability (Elliot, 2005). Nicholls (1984) viewed differential conceptualizations of abilities as "the keys to understanding achievement motivation" (p. 329), especially referring to achievement states. Hence, he made a similar postulation to that of Dweck's research team: abilities can be viewed as fixed capacities, or as attributes that can be continuously developed and their differential conceptualization leads to specific achievement goal patterns.

### 1.3 The approach – avoidance dimension of achievement goals

The research work of Dweck (1975) and Nicholls (1976) suggested that a focus on mastery goals leads to higher levels of task performance and performance related behaviors, cognitions, and emotions, than a focus on performance or ego-involved goals. This postulate guided applied research endeavors in the 1990's, in developmental psychology, educational settings (Ames, 1990, 1992; Maehr & Midgley, 1991; Pintrich & Garcia, 1991), sports psychology (Duda & Nicholls, 1992; Seifriz, Duda, & Chi, 1992; White, Duda, & Hart, 1992), social and personality psychology (Harackiewicz & Elliot, 1993; Harackiewicz & Sansone, 1991).

Increased efforts to investigate and integrate such a conceptualization of motivation in both experimental and applied research have gradually escalated into an epistemic crisis in the mid '90s. Analysis of existing studies tended to suggest that in certain types of contexts a performance orientation can be as beneficial as a mastery orientation and that at times individuals can hold at the same time mastery and performance goals (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Elliot & Harackiewicz, 1994; Farr, Hofmann, & Ringenbach, 1993; Fox, Goudas, Biddle, Duda, & Armstrong, 1994; Harackiewicz & Elliot, 1993; Miller & Hom, 1990). Mastery goals were delineated as positive predictors of task involvement, positive affect in task pursuit and persistence in the face of set-backs. Unfortunately, as Elliot (2005) concludes in the review of these studies "mastery goals indeed tended to lead to a host of positive processes and outcomes (although evidence linking mastery goals to positive performance outcomes was conspicuously sparse)" (p. 58). What appeared as a necessity was a conceptual and functional reconsideration of performance goals and their impact on individual functioning.

The approach – avoidance distinction in the valence individuals attach to an activity appeared as an illuminating refinement of achievement goals. Dwelling on previous theoretical and methodological accounts (Alpert & Haber, 1960; Atkinson, 1957; Covington & Beery, 1976; McClelland, Atkinson, Clark, & Lowell, 1953; Weiner, 1972), the team of researchers led by Andrew Elliot has gradually introduced this distinction in the achievement goals literature. They described performance and mastery goals in terms of both *approach* (an orientation to demonstrating ability) and *avoidance* (an orientation to avoiding the demonstration of lack of ability) components (Elliot, 1994, 1997, 1999; Elliot & Church, 1997; Elliot & Thrash, 2001; Elliot & Harackiewicz, 1996; Rawsthorne & Elliot, 1999).

These components derive from the *valence dimension of competence* (Elliot & McGregor, 2001). Competence is valenced in terms of a positive, desirable possibility (success) or a negative, undesirable possibility (failure). Studies indicate that people process most, if not all, encountered stimuli in terms of valence and do so immediately and without intention or awareness (Bargh, 1997; Zajonc, 1998). Furthermore, this automatic, valence-based processing is presumed to instantaneously evoke approach and avoidance behavioral predispositions (Cacioppo, Priester, & Berntson, 1993; Forster, Higgins, & Idson, 1998).

Elliot and McGregor (2001) defined a 2 (mastery versus performance) × 2 (valence: approach versus avoidance) framework for achievement motivation: (a) mastery-approach goals (in which competence is defined in absolute/intrapersonal terms and is positively valenced); (b) mastery-avoidance goals (in which competence is defined in absolute/intrapersonal terms and is negatively valenced); (c) performance-approach goals (in which competence is defined in normative terms and is positively valenced); (d) performance-avoidance goals (in which competence is defined in normative terms and is negatively valenced).

People who are focused on approach performance goals are oriented toward doing better than others and demonstrating their ability and competence, in other words, approaching tasks in terms of trying to outperform others. In contrast, under an avoidance performance orientation, people try to avoid looking incompetent compared to others, hence focusing on prevention of failure. In both correlational and experimental research where mastery, approach performance, and avoidance performance goals are compared, non-adaptive patterns of intrinsic motivation and actual performance usually occur in the avoidance performance groups (Elliot, 1997; Elliot & Church, 1997; Elliot & Harackiewicz, 1996). In appraising the differential effect of achievement goals on task performance, research tends to indicate that mastery goals are generally associated with promotion of self-determination, task involvement, increased autonomy, and enjoyment (Dweck, 1986; Koestner, 2008; Powers, Koestner, & Zuroff, 2007). Performance goals are supposed to increase and sustain evaluation anxiety, pressure to meet expected results and normative demands (Deci & Ryan, 1991; Harackiewicz, Manderlink, & Sansone, 1984; Nicholls, 1989).

We believe that an important distinction must be made in the analysis of achievement goals effects on performance. This distinction refers to delimiting their impact on performance indicators versus performance contingencies. By *performance indicators* we refer to task specific outcomes which are representative for how well an individual fulfills a given task. *Performance contingencies*, on the other hand, reflect behavioral, emotional or cognitive personal responses associated with a type of achievement goal, which are not directly related to task outcomes. They can moderate positively or negatively the impact of achievement goals on performance indicators, but are not necessarily linked to high performance levels. Most research studies rather focus on how achievement goals impact performance contingencies, making only circumstantial remarks on task specific performance indicators. We view this as a major limitation of research studies in this area and one of the prime reasons why we know so little about how achievement goals actually impact performance. Of these performance contingencies, the most widely researched are self-efficacy, task interest, involvement, and persistence. These aspects will be presented in more detail in subsequent chapters.

What is important to note at this point, is the fact that increased interest and involvement for a task, which are generally rather associated with mastery goals (Ryan & Brown, 2005), are **not** necessarily sustained by high levels for performance indicators in that task. For instance, a student can be very interested and involved in solving Algebra problems, but he may have lower results at an Algebra assessment than students who are not as interested or subjectively

involved in this type of activity. Such discrepancies have urged reconsideration of the distinction mastery versus performance goals, with the specification of goal valence (approach versus avoidance). They should make both researchers and practitioners reconsider the value of achievement goals on performance indicators versus contingencies.

#### 1.4 Self-determination and achievement goals

Self-determination theory is organized on the influence of autonomy in motivational processes, proposing that self-determined behavior, freely chosen and reflecting personal values, is associated with the highest levels of individual functioning (Deci & Ryan, 1991; Ryan & Deci, 2000). Central to self-determination theory is the concept of basic psychological needs that are assumed to be innate and universal. According to the theory, these needs - namely *competence*, *autonomy*, and *relatedness* - must be permanently satisfied in order that people develop and function in healthy or optimal ways (Deci & Ryan, 2000). Three main characteristics: *autonomy*, *control*, and *amotivated orientations* are theorized to differentially construct motivation by influencing the extent to which individuals perceive goals as intentionally chosen.

The theoretical model is based on the assumption that people possess inborn tendencies to psychologically grow and develop, to pursue and control environmental challenges, and to integrate experience into a coherent self-concept (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000). These tendencies are fully expressed only within a *supportive social context*. That is, self-determination is not achieved simply because an individual has certain prerequisite knowledge and skills; it is also important that key people and institutions in a person's life environment provide a facilitative context for the development of self-determination. From an intervention focused perspective, self-determination "refers to the attitudes and abilities required to act as the primary causal agent in one's life and to make choices regarding one's actions free from undue external influence or interference" (Wehmeyer, 1992, p. 305).

Self-determination is inherently linked with the development of *intrinsic motivation* for an activity and *autonomy* in approaching tasks. As the need for competence is conceptualized as one of the basic individual needs, the intricate pattern of relations between achievement goals and self-determination indicators has been extensively analyzed in research studies. In mapping differential influences of mastery versus performance goals on intrinsic motivation, Rawsthorne and Elliot (1999) conducted a quantitative meta-analysis of 23 separate experimental studies on this topic. Intrinsic motivation was operationalized through behavioral indicators in the *free-choice paradigm*, with: (a) appraisal of the participants' actual behavior denoting further engagement in an activity; or (b) *self-report indicators* regarding the individual's intention and interest in future involvement in a given activity.

The authors capitalized in their meta-analytical study on what they assessed as an important distinction in the conceptualization of performance goals. This distinction relies on the conceptualization proposed by Nicholls

(1984), and segments the definition of a performance orientation in terms of ego involvement or normative standards. The former refers “to a condition in which one’s self-esteem is invested in or contingent on attaining a specified outcome or reaching a certain standard” (Rawsthorne & Elliot, 1999, p. 327), while the latter includes an external normative standard in performance level appraisal (a norm group). The authors view performance goals framed in terms of ego involvement as more detrimental to intrinsic motivation and self-determination. The results of the meta-analysis indicated that performance goals are associated with reduced: *free-choice persistence* in an activity, *self-reported interest* and *task enjoyment* than mastery goals. The magnitude of the summary composites was low, though systematic across all meta-analyzed studies.

The postulated distinction between *ego* versus *normative* focus in defining a performance orientation could not explain the variability of results in the meta-analyzed studies. An interesting aspect brought forward by Rawsthorne and Elliot’s (1999) meta-analysis was the fact that *valence of competence feedback* leads to differential influences of achievement goals on intrinsic motivation behavioral measures. Competence *confirming* feedback led participants holding a performance goal to decrease their intrinsic behaviors for task pursuit. The same goal condition was associated with an increase in intrinsic behaviors when the feedback was negative (competence *infirming*) or when no feedback was given. Under the latter feedback modalities performance and mastery goals determined similar levels of intrinsic behaviors, measured through free-choice involvement in a given activity. Homogeneity tests revealed that the valence of competence feedback has relevant explanatory power for behavioral measures of intrinsic motivation, but not so much for self-report measures. The approach-avoidance distinction was rendered to better account for the variability in performance compared to mastery orientations. On the one hand, performance approach goals had similar effects on intrinsic motivation behavioral and self-report measures to those of mastery goals. Performance avoidance goals, on the other hand, had a detrimental effect of both types of intrinsic motivation measures.

In the SD paradigm, evaluative external input individuals receive, in the form of appraisals or feedback (e. g. grades, verbal or objective rewards) is interpreted depending on the *functional significance* assigned by the individual to an activity or event (Deci & Ryan, 1985, 2000). *Construction of competence* is related to three types of subjectively assigned functional significance: informational, controlling, or amotivating (Ryan & Brown, 2005). Firstly, *informational significance* refers to feedback which offers specific information on how an individual can become more proficient in an activity, without putting pressure or exerting control on his endeavors in that task; this form of subjective significance is linked to positive influences on motivation. Secondly, *controlling significance* integrates high degrees of external pressure to reach a specific outcome or employ certain strategies toward that outcome; this category of significance induces initial compliance with the imposed demands, but in the longrun undermines interest and commitment to a task. Thirdly, *amotivated significance* encompasses feedback perceived as mainly focusing on the incompetence of individuals in a given task, through excessively difficult performance standards or systematic emphasis of shortcomings and

errors; this type of significance is supposed to lead to reduced effort and interest and rapid withdrawal from an activity.

The theoretical assumptions of self-determination models construct the image of an individual driven by basic needs which sustain the development of intrinsic motivation and autonomy in action. Construction of competence is therefore further detailed, in that it is viewed as an inborn need. It is best facilitated through an autonomous orientation toward activities and informational significance of competence feedback one receives (Ryan & Brown, 2005). The role of competence feedback can be better analyzed using findings in this paradigm, with competence *confirming* feedback leading participants with performance goals to decrease their intrinsic behaviors for task pursuit. The same goal condition was associated with an increase in intrinsic behaviors when the feedback was negative (competence *infirming*) or no feedback was given. Also, performance goals are associated with reduced *free-choice persistence* in an activity, *self-reported interest*, and *task enjoyment* than mastery goals (Rawsthorne & Elliot, 1999). Self-determination seems to be linked to a higher extent to the development of mastery goals, which sustain and are sustained by autonomy beliefs and behaviors.

### 1.5 Self-efficacy and achievement goals

*Self-efficacy based theories* (Bandura, 1997) focus on the individual as a proactive and anticipative system. In this paradigm, self-regulation derives from a dual system of control: a *proactive* system of discrepancy creation, which functions together with a *reactive* system of discrepancy reduction. Competence is viewed as deeply rooted in personal experiences with a class of activities, and it is defined in terms of efficacy beliefs and outcome expectations. Gradual development of a self-schema regarding one's efficacy in a specific domain influences competence perceptions in that domain and ultimately impacts upon performance outcomes (Wood & Bandura, 1989). Self-efficacy beliefs are reflected at the level of goal setting, planning strategies, implementation strategies, and assessments of performance levels (for an in-depth analysis, see Bandura & Locke, 2003).

Goal *setting* parameters (difficulty, complexity, novelty), goal *processes* (persistence, strategies when facing barriers, allocation of effort, attention deployment) and goal-relevant *assessments* (perceptions of task controllability, expectancies for success versus failure, processing of negative feedback) are influenced by self-efficacy beliefs. Empirical studies indicate that self-efficacy is positively related to the persistence individuals deploy when facing negative discrepancies between goal and performance outcomes (Bandura & Cervone, 1986), to task performance (e.g. Bandura & Wood, 1989; Phillips & Gully, 1997) and to levels of self-set goals (Locke & Latham, 1990).

A reactive control system comes into play according to this model whenever individuals receive negative feedback regarding their actions, but it is doubled by a discrepancy creation system, in which they set higher standards for themselves, in light of high levels of self-efficacy beliefs (Bandura & Cervone,

1986). Hence, self-determination in the construction of competence is not only related to reducing discrepancies between personal achievement goals, but also to proactively creating new standards, for higher levels of performance. From an achievement goal perspective, these tenets bring important information, as they detail the perpetual development of competence as interplay between discrepancy creation and discrepancy reduction. In analyzing within individual differences at this level, Jourden (1991) pointed out that when *feedback* is framed as progress toward goal achievement, self-efficacy beliefs increase, goals become self-set and self-satisfaction attains higher levels. When feedback brings forward shortfalls, all previously presented dimensions decrease and performance gradually deteriorates. It thus seems that development of competence is rather aided by the prospect of self-development and high level beliefs that one has “what it takes” to be proficient in an activity.

In correlational school learning studies, self-efficacy beliefs were evidenced as positive correlates of mastery goals; the development of academic competence is complexly linked with the development of academic self-efficacy (Harackiewicz et al., 1998; Kaplan & Midgley, 1997; Miller, Behrens, Greene, & Newman, 1993). Academic self-efficacy is based on student aptitudes and skills, direct or vicarious learning experiences in the specific domain, and social support (Bandura, 1997; Schunk, 1995). Research on the relation between self-efficacy and persistence indicates that individuals with high levels of self-efficacy tend to be more persistent in pursuing activities, especially in the early stages of learning (Schunk, 1995). The confidence induced by high self-efficacy levels aids performance in the face of failure, through better calibration of effort and selection of adequate strategies (Stone, 1994). The between individuals variability in the development of competence is attributed to differential constructions of self-efficacy beliefs, with age and schooling modifying the meaning of effort and ability (Nicholls, 1984). Socio-cognitive approaches on competence point out the role of parents, teachers, educational contexts, peer influences on individual development. They revealed an intricate pattern of facilitative and inhibitive mechanisms which impact on personal conceptions of achievement.

Educational studies on mastery versus performance goals take into account this multidimensional conception of competence and try to integrate measures of individual self-efficacy in assessments of achievement goals. The differential dynamics of the relation mastery versus performance goals with self-efficacy has been extensively researched in educational settings, with mixed results, especially for the performance goals orientation (Harackiewicz et al., 1998; Kaplan & Midgley, 1997; Miller, Behrens, Greene, & Newman, 1993). While mastery goals are generally believed to be associated with higher levels of self-efficacy hence providing partial explanation for their importance in individual development, performance goals are more controversial. Dweck and Leggett (1988) initially postulated that self-efficacy beliefs act as a moderator for performance goals, in that they have negative effects only when combined with reduced self-efficacy, an assumption that had yielded controversial results. Wolters, Yu and Pintrich (1996) pointed out, in a correlational study on junior high-school students, that



high levels of performance approach goals predicted high levels of self-efficacy, task value, and employment of cognitive and metacognitive strategies.

In another study though, Kaplan and Midgley (1997) did not find a relation between performance approach goals and self-efficacy. Pintrich (2000) proposed a *multiple goals* perspective in the analysis of the relation self-efficacy beliefs – achievement goals; individuals can hold and pursue multiple goals at one time, for one activity, being both concerned with doing better than others, while also focusing on mastering a given task. This revised perspective on achievement goals has drawn the attention of researchers in the past decade. It tentatively indicates that an adequate balance between performance and mastery orientation for an activity can yield better and more adaptive outcomes than an exclusive focus on mastery goals (Pintrich, Conley, & Kempler, 2003; Wolters et al., 1996). In this conceptualization, the influence of efficacy beliefs must be analyzed for both types of achievement orientations. In line with this approach, in a correlational study on university students for a mathematics task, Zusho, Pintrich, and Schnabel (2002) found that mastery and performance approach goals both were valid predictors for efficacy and interest.

High levels of task specific self-efficacy represent valid contingencies of interest development for an activity and further action involvement in that activity, with research studies indicating a strong relation between mastery goals and self-efficacy beliefs. Hence, analysis of task interest and involvement through the lenses of self-efficacy processes can offer a more detailed understanding on how achievement goals impact performance in an activity.

## 1.6 Goal-setting and achievement

*Goal setting theory* was gradually elaborated by Locke and Latham, (two industrial-organizational psychologists) starting from the 1960's. Their theory focuses on different goal dimensions which can enhance performance, with most applications referring to work and organizational settings. These dimensions care refer to mechanisms through which goals operate, moderators of goal effects, the relation between goals and satisfaction, and the role of goals as mediators of incentives (Locke & Latham, 2002).

According to Locke and Latham (2002), goals can affect performance through four processes: (a) *directive* – they focus attention of goal-relevant activities, at both cognitive and behavioral levels; (b) *energizing* – high difficulty goals are associated with an increased expenditure of effort, compared to low difficulty goals; (c) influence on *persistence* in an activity – the level of goal difficulty and the amount of time in which an activity can be completed lead to differential trade-offs between intensity of effort and time spent on the given activity; (d) facilitation in the use of *task-relevant knowledge and strategies*.

Achievement goal models and self-determination theories operate on “higher” ground, in that they are rather interested in depicting the dynamics of purpose goals. Goal setting theory started from applied observations on how goals impact performance and to this day focuses on prescribing how goals should be

structured in order to lead to the highest levels of performance. Hence, research in this model focuses on the relation goal structures – performance dimensions, and it tests how: (a) goal *difficulty*, *complexity* and *specificity* affect performance (Erez & Zidon, 1984; Locke & Latham, 1990; Mento, Steel, & Karren, 1987; Winters & Latham, 1996); (b) *previous experience and preexisting skills* are used to pursue a current goals (Latham & Baldes, 1975; Latham & Kinne, 1974); (c) *planning strategies* are applied to *novel* goals (Smith, Locke, & Barry, 1990); (d) *training strategies* can influence effective goal setting (Audia, Locke, & Smith, 2000; Earley & Perry, 1987). A series of meta-analyses on the goal setting model have pointed out the fact that difficult and specific goals lead to better performance than easy, “do your best” goals (Mento, Steel, & Karren, 1987). Hard, specific goals combined with feedback are linked with augmentation in performance (Tubbs, 1986). Task complexity was found as a moderator for the effect of goal specificity of simple versus complex tasks (Wood, Mento, & Locke, 1987).

Though there have been few studies linking achievement goals with goal setting findings, a host of research endeavors in both frameworks have brought into attention that the two models can complement each other in revealing a more complex image of personal intentionality (Senko & Harackiewicz, 2005a; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000). In analyzing the relation between achievement goals and interest in determining performance, Senko and Harackiewicz (2005a) acknowledge that the level of perceived task difficulty is an important factor in how mastery versus performance goals influence performance outcomes. The researchers hypothesize that mastery goals increase task interest through the mediation of perceived goal difficulty, with mastery goals being perceived as easier to pursue and attain than performance goals. Still, the two researchers do note that the level of abstractness for achievement goals versus task specific goals is different, with the former being more abstract, while the latter are closely linked with task specific requirements and hence more detailed (Senko & Harackiewicz, 2005a). This is an important distinction between the two types of goals, and one of the reasons, why, we believe, little has been done so far to link achievement goals with task-specific goals.

The focus of goal setting theory and research on goal structures and task dimensions can offer an interesting ground for future studies in the achievement goal paradigm. Some important short-comings that must be overcome in order to allow goal setting findings to be better integrated in achievement goal research, encompass: (a) more accurate dimensional charting of *tasks* used in achievement goal studies in order to link task structure with effectiveness of achievement goals upon performance; (b) integration of achievement goals with *task goals*, in order to better understand which task goal characteristics (as researched in the goal-setting paradigm) better facilitate specific achievement orientations; (c) testing of goal setting assumptions on effective goal structures in *contexts* where competence is defined on achievement parameters. We strongly believe that operational statements on mastery versus performance goals can be defined in the future using the complex findings of goal setting studies.

## 1.7 Achievement goals: rejoicing on theoretical grounds

Achievement goals are defined through contexts where one's competence is relevant, with mastery goals focusing on *competence* development and performance goals focusing on competence demonstration. They are linked with different effects on performance in an activity, with *feedback* being differently processed by individuals operating on a mastery goal versus a performance goal. The *approach-avoidance* distinction offers a more detailed account of achievement goal effects on actual performance, with the formulation of a goal in terms of avoiding failure being detrimental on cognitive, emotional, and behavioral functioning, regardless of mastery or performance focus. Though the importance of achievement goals in defining individual intentionality structures has been long established, the theoretical tenets could benefit from analysis of goals conducted in other goal models.

Viewing achievement goals through the lenses of *self-determination mechanisms* aids a better understanding of how performance versus mastery orientations differentially impact performance outcomes and aid the construction of performance contingencies. When analyzed in ecological settings, self-determination in action representation and implementation represents a key factor in the situational development of achievement goals. Two conceptual distinctions made in this paradigm contribute to a better understanding of the relation achievement goals – performance outcomes, with an operational focus on intrinsic motivation patterns. Firstly, the valence of competence feedback differentially impacts performance versus mastery goals. *Competence confirming feedback* leads individuals holding a performance goal to decrease their intrinsic behaviors for task pursuit, while for mastery goals it is linked with an increase in intrinsic behaviors for task pursuit. Secondly, *construction of competence* is mediated by three types of subjective functional significance the individual assigns to an activity or event: informational, controlling, or amotivating. These modalities of functional significance gradually lead to different achievement orientations toward that activity, with informational significance being associated with the most positive influences on action implementation. An important amendment we must specify here is that self-determination research rather focuses on performance contingencies. These are analyzed through self-report or behavioral measures of task involvement, interest or persistence, without systematic investigation of performance indicators in an activity.

In order to analyze the relation achievement goals – performance indicators, a valuable source of operational information is offered by the *goal setting theory* and research findings, which focus on *goal structural dimensions* that increase performance. This model maps both goal structural organization and task characteristics, in establishing how a goal should be formulated in order to lead to high levels of task performance. Goal and task *difficulty, novelty, complexity, and specificity* have been thoroughly analyzed in this model, in direct relation to structural segmentation of a given task. The relation task goals – purpose goals, where through purpose goals we refer to achievement goals, can be better traced using structural analysis dimensions which were researched in the goal setting

paradigm. In order to tap into the relation achievement goals – task goals – performance, we will next use dimensions of analysis employed in this paradigm.

The role of *self-efficacy beliefs* in goal directed behavior has been widely researched, both in the achievement motivation framework and the self-efficacy one. Empirical studies, conducted in laboratory and field settings, have brought into attention the power of high task self-efficacy when individuals are confronted with negative discrepancies between goal and performance outcomes. In the self-efficacy framework competence is inherently related to a dual process of discrepancy reduction and discrepancy creation in setting and implementing new goals. Individuals are orientated toward achievement not only in order to reduce the distance between an expected (or imposed) performance outcome and a present state. They are also driven by a proactive tendency to set and engage in new goals, without any preexisting negative pressures, internal or external. Though we will not dwell on the self-efficacy dimension in our research endeavors, we chose to analyze this approach as it posits an important specification in understanding the mastery – performance goal distinction. In the pursuit of a goal in ecological contexts individuals gradually develop activity-specific efficacy beliefs, which are in a relation of *dual determination* to mastery and performance goals. Development of *task interest, future behavioral involvement in that activity, persistence* when task performance is at low levels or it plateaus are all linked with high levels of self-efficacy. Unfortunately, this complex dynamics cannot be investigated in experimental settings, but it is important to note that recent studies bring into attention that self-efficacy beliefs can be positively reflected in achievement goals, both mastery and performance oriented, but only when they have an *approach* valence.

Table 1.1 summarizes conceptual dimensions and findings in mapping the relation achievement goals-performance.

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**Table 1.1** Conceptual dimensions and findings in mapping the relation achievement goals – performance, based on previously analyzed theoretical approaches

Key concepts	Theoretical background	Relevant dimensions and findings
DEFINING ACHIEVEMENT GOALS		
Competence	Achievement motivation Self-determination theory	<ul style="list-style-type: none"> <li>- Competence refers to <i>levels</i> and <i>domains of functioning</i> and it involves differential <i>individual strategies</i> (cognitive, behavioral, and emotional) in approaching it. Competence is appraised depending on different evaluation standards: absolute, intrapersonal, normative.</li> <li>- Construction of competence is related to three types of <i>functional significance</i> for an event or for feedback: informational, controlling, or amotivating.</li> </ul>
Achievement orientation	Achievement motivation	<ul style="list-style-type: none"> <li>- <i>Mastery</i> versus <i>performance</i> orientation reflects a focus on competence development (mastery) versus competence demonstration (performance).</li> <li>- The <i>valence</i> of achievement goals reflects an orientation toward approaching success (approach) or avoiding failure (avoidance).</li> <li>- Achievement goals are postulated as <i>task and activity specific</i>.</li> </ul>
Achievement activities / contexts	Achievement motivation	<ul style="list-style-type: none"> <li>- They refer to <i>contexts</i> and <i>activities</i> where competence development or demonstration is relevant.</li> <li>- Accurate mapping of achievement activities and contexts is needed, in order to better trace contextual facilitators and inhibitors of different types of achievement goals.</li> </ul>
Competence feedback	Achievement motivation Self-determination theory Goal setting theory Self-efficacy models	<ul style="list-style-type: none"> <li>- <i>Valence</i> of feedback can be positive (competence confirming) versus negative (competence infirming).</li> <li>- Competence confirming feedback for performance goals leads to decreases in intrinsic behaviors, while competence infirming feedback leads to increases in intrinsic behaviors. Valence of competence feedback has relevant explanatory power for behavioral measures of intrinsic motivation, but not so much for self-report measures.</li> <li>- Feedback that is framed as progress toward goal achievement leads to increases in self-efficacy beliefs, self-set goals, and self-satisfaction.</li> </ul>

In order to provide a more detailed account on the impact of achievement goals on performance, we believe that the following dimensions of investigation need more accurate analysis and research:

- *Structural mapping of achievement contexts.* We refer here especially to contexts with high *competition framing*, which have not yet been adequately researched in experimental contexts in this paradigm. From these contexts, an aspect of high relevance for the construction and pursuit of performance goals refers to an operational investigation of *competitor identity*, which reflects how a normative standard is mirrored in task performance.
- *Impact of feedback and achievement goals on task performance.* Though theoretical tenets sustain the high relevance of competence feedback on achievement goals' effect upon performance, a limited number of studies have analyzed this relation. Hence, methodological approaches on how the type and valence of competence feedback modulates effects of achievement goals on performance would represent an important theoretical and investigative addition.
- *The distinction performance indicators versus performance contingencies in appraising the effect of achievement goals on performance.* On the one hand, through *performance indicators* we refer to task-specific outcomes which are representative for how well an individual fulfills a given task. *Performance contingencies*, on the other hand, reflect behavioral, emotional or cognitive personal responses associated with a type of achievement goal, which are not directly related to task outcomes. They can moderate positively or negatively the impact of achievement goals on performance indicators, but are not necessarily linked to high performance levels. Most research studies rather focus on how achievement goals impact performance contingencies, making only circumstantial remarks on task-specific performance indicators. We view this as a major limitation of research studies in this area and one of the prime reasons why we know so little about how achievement goals actually impact performance. Of these performance contingencies, the most widely researched are task interest, task involvement, and task persistence.

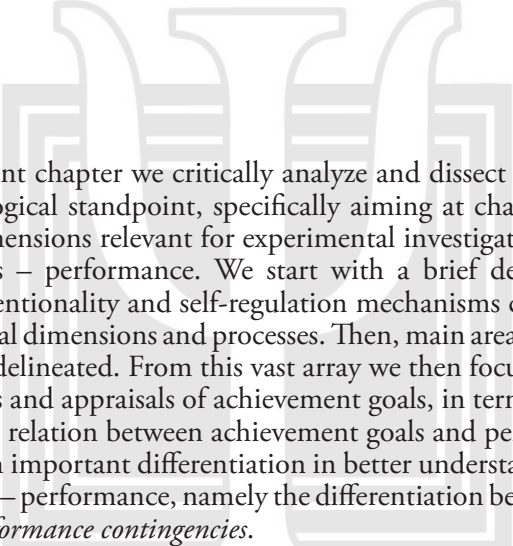
## CHAPTER 2



ACHIEVEMENT MOTIVATION:  
WHAT DO WE REALLY MEASURE?







In the present chapter we critically analyze and dissect achievement goals from a methodological standpoint, specifically aiming at charting achievement goals and task dimensions relevant for experimental investigation of the relation achievement goals – performance. We start with a brief description of basic tenets on how intentionality and self-regulation mechanisms can be depicted by investigation of goal dimensions and processes. Then, main areas of goal structures and processes are delineated. From this vast array we then focus on experimental conceptualizations and appraisals of achievement goals, in terms of experimental tasks that map the relation between achievement goals and performance.

We make an important differentiation in better understanding the relation achievement goals – performance, namely the differentiation between *performance indicators* and *performance contingencies*.

The former dimension is directly linked to *specific task requirements, referring to specific outcomes and outputs of task completion* and must be carefully operationalized according to task characteristics and contents. From task specifications and characteristics we critically analyze *task complexity, difficulty, and novelty*, in order to conclude on the most appropriate performance indicators which can reflect the relation achievement goals – performance.

The latter one encompasses *initial (before task on-set), progress-related (during task) or outcome-related (after task completion) strategies and evaluations subjects employ to represent, pursue, and ultimately achieve competence in an activity*. Performance contingencies can be mediators or moderators of performance indicators and outcomes, but are not directly related to task outcomes.

Also, we analyze methodological dimensions of assigned versus self-selected achievement goals in experimental studies on achievement goals, breaking down procedures of goal assignment and induction mechanisms. Next, we briefly discuss questionnaire-based assessment strategies of achievement goals and their use in experimental research.

We conclude the chapter by integrating methodological tenets that will guide our research endeavors in the investigation of the relation achievement goals – performance.

## 2.1 Mapping intentionality and self-regulation through goal dimensions and processes

2

According to Brandtstaedter and Rothermund (2002), an activity may be considered to be intentional when: (a) it is selected on the basis of *particular intentional orientations* (goals, beliefs, expectancies) of the individual; (b) it is performed with the *intention to achieve some particular outcome*, or to express individually relevant values or attitudes; (c) it implies that the *person perceives he has some degree of control* over the course of action, whereby he considers he “could have done otherwise” if he / she had chosen.

Activities of intentional self-development integrate processes that involve different intentional contents and different systems of knowledge (Brandtstaedter, 1998; Brandtstaedter & Rothermund, 2002), and can be grouped into:

- a. perceptions and beliefs about actual states and prospects of personal development that can be integrated into an *implicit theory about oneself*;
- b. normative standards and projections of personal development (*goals, values, and life themes*), that contrasted with feedback about actual development states or prospects, may generate *self-evaluative reactions*; these self-evaluative reactions include performing high diagnostic tasks or searching for information that is diagnostic for success, failure, level of ability (Trope & Neter, 1994; Trope & Pomeranz, 1998);
- c. *expectancies related to the social, contextual, and personal accessibility of resources*, to influence and change developmental functions and outcomes.

It is important to note that not all goals are “created” equal. People have multiple goals at one point in their development, which can be in different life domains (eg. personal, family, job, leisure) and are enforced or diminished by situational and social contexts (eg. professional and personal opportunities or barriers, family context, economic stability). Self-regulatory actions often serve multiple goals (eg. one decides to lose weight in order to appear more attractive to the spouse, to develop a healthy life-style, to cut costs of restaurant bills).

The hierarchical organization of intentional processes and structures implies multiple criteria for organizing goals. Various researchers present different dimensions of an intentional process that are to be taken into consideration in experimental designs and organizational or educational programs. Austin and Vancouver (1996), Emmons and Kaiser (1996), Deci and Ryan (2000), Carver and Scheier (1998), Higgins (2002), Dweck (1996) dissect human intentionality and goals on the following levels:

- **organization / hierarchy of goals:** organization of individual goals into hierarchical structures composed of interconnected higher order goals, subgoals and task specific goals; Emmons and Kaiser (1996) talk about goal integration and goal differentiation (the degree of interrelation that exists between individual goals in the system).

- **goal dimensions:**
  - *level of difficulty* (easy versus difficult);
  - *time framing* (proximal versus distal);
  - *goal conflict and goal ambivalence* (intra-goal or inter-goals);
  - *importance / commitment* (personal valence of goals, goal intensity, goal relevance);
  - *specificity representation* (specific versus general on qualitative and quantitative dimensions);
  - *level of consciousness* (automated versus conscious goals, considering levels of conscious cognitive processing and automaticity);
  - *task specific aspects:* organizational / work goals, learning goals, educational goals, personal goals (family, relationships, etc.); every type of task in these domains requires an analysis of task domain in order to define the specific and relevant goal-task aspects.
- **goal processes:**
  - *establishment:* the individual selects goal contents and develops its dimensions (the interaction and conflict between internally set versus externally established goals involve different mechanisms of goal establishment);
  - *planning:* the development of specific alternatives and behavioral paths through which a goal can be attained (testing of alternative actions and strategies, organization of priority levels, linking levels of importance and setting standards for achieving subgoals, temporal planning, detection of obstacles and opportunities);
  - *striving and monitoring:* goal direction and strategy, perceived progress towards goal attainment, level of effort and persistence, errors, feedback;
  - *attainment and revising:* rate of progress, decision when a goal is attained and goal closure, goal revision by means of strategy change, effort level, goal failure and mechanisms of conceptualizing failure (change in goal hierarchy, postponement of goal achievement, etc.).
- **goal related affect** which can arise from: the degree of goal attainment, estimated rate of progress toward goal attainment, anticipated goal attainment, “flow of experience” during goal striving and differs in terms of: emotional valence, intensity, duration.

## 2.2 Experimental conceptualizations and appraisals of achievement goals

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The *goals* individuals construe and pursue are inexorably linked with specific *task contents* and *contexts*. They can have different levels of abstractness, on a continuum from specific task goals to global life goals, but they are always about something, with goal contents influencing goal processes. Also, goals develop and are implemented in context, with dual determination between situational demands and personal variables. Hence, comprehensive investigation of achievement goal structures and processes must take into account these basic goal determinants. In order to map types of tasks that bring forward goal structures and dynamics we next analyze how research studies approach structural and process performance links of goals in achievement contexts.

Investigation of achievement goal structures and dynamics can be broadly classified in: (a) experimental tasks, where goals are quantifiable on normative and absolute standards established by researchers and (b) real-life tasks, where performance levels and goal dimensions are domain specific (educational tasks, learning tasks, work tasks, personal life tasks) and hence more idiosyncratic. The former contain simple tasks, where achievement goal setting and impact of goals on performance are monitored compared to specifically predefined task characteristics. The latter involve complex activities, where a multitude of factors, which we refer to as performance contingencies, influence the relation achievement goals – performance and must be more complexly taken into account.

We next focus on the characteristics of tasks employed in experimental achievement goal research, in order to draw some relevant dimensions to be taken into account when conducting experimental research in this paradigm. In reviewing tasks used to investigate goal setting processes, Locke and Latham (1990) identify the following categories of tasks: (a) simple arithmetic / computational tasks; (b) clerical/miscellaneous tasks; (c) listing nouns, objects, or uses for various items. In the achievement goal literature experimental tasks construct or reconstruct a *competence relevant context*, which can appropriately match pursuit of achievement goals. Following the definitions of competence previously discussed, a competence relevant context must always integrate assessment criteria for performance, on different levels of pre-set *standards* (absolute, intrapersonal, normative).

Regarding the operational definition of competence standards for the specific task employed, Elliot and Harackiewicz (1993, 1996) report using a so-called Nina puzzle task in investigating the effects of performance goals on intrinsic motivation. The activity involved participants in finding and circling the word Nina, which was hidden throughout a drawing. Task requirements were verbally specified before task onset, with goal framing groups being presented with an evaluation standard in terms of: (a) reference group compared to which normative performance was appraised (for performance goal groups) or for which the activity was designed (for mastery goal group); (b) performance expectancies for completing the task (minimum and maximum task performance level in the

reference group, in a pre-specified time-frame); and (c) type of feedback (focused on success for performance approach group or on failure for performance avoidance group). The mastery group was presented only with task requirements, with the reference group (college students) introduced just as the target group of the research. Task requirements were defined through: (a) general aim of the research; (b) general presentation of the task (types of items, task inherent processes); (c) number of items to be presented in the activity; (d) time-frame for task completion; (e) type of feedback to be given. For all groups feedback was given after activity completion; feedback did not reflect actual performance and was identical for all groups.

Senko and Harackiewicz (2005a) also used a game-type task derived from the game of Boggle in order to analyze the differential impact on performance versus mastery goals on task performance and interest (Study 1). The task was completed in a pen-and-paper format; Boggle is a word game, with participants having to connect adjacent letters in a 4X4 matrix, in order to find as many words as possible through use of contiguous letters. Subjects in all experimental groups were presented with the structure and rules of the task, were then guided by an experimenter in practicing the activity and were taught several strategies to quickly find words in the puzzle.

Presentation of the task hence contained a demonstration phase (the experimenter demonstrated how the task is performed) and a guided practice phase (participants practiced the task with strategy guidance from the experimenter). In the manipulation phase competence was defined through normative comparison with the reference group (other students) and operationalized in terms of task outcomes: "finding more words than other participants on the next pair of puzzles" (Senko & Harackiewicz, 2005a, p. 1742). For the mastery goal group competence was specified in terms of improving one's capacities in approaching the task: "learning and using the word-finding strategies on the next pair of puzzles" (Senko & Harackiewicz, 2005a, p. 1742). Task feedback was offered after activity completion. As feedback was an important variable in this study, perceptions of success were manipulated through bogus feedback. Feedback was provided in a written form, which indicated the number of correct words found in each puzzle and an evaluation on a 3 point Likert scale (ranging from poor to good) reflecting their success in accomplishing the previously set goal.

Van Yperen and Renkema (2008) used a computerized verbal skills activity (Study 2) in the analysis of previous performance as antecedent for 2X2 achievement goal adoption and grouped the activity in three modules: Synonyms, Analogies, and Categories. Participants first completed a training phase, in order to get accustomed to task requirements. Subsequently they entered the manipulation phase, where they had to choose one of four achievement goal orientations in the 2X2 achievement goal paradigm. Competence was defined through use of a norm-group performance level, which was presented on the same screen where participants completed their answers. The performance levels of this norm group were based on subjects' demographic data collected before the experiment and contained the number of correct results for the three modules. In order to link competence with performance self-assessment, the authors asked

participants to assess their number of correct responses in the training phase, prior to engagement in the manipulation phase.

In experimental contexts achievement goals are analyzed through generation of a competence context, in which mastery versus performance orientation is predominantly activated, through reference to different levels of pre-set *standards* of activity outcomes (absolute, intrapersonal, normative). *In order to offer an operational definition for performance, they must be: (a) defined for the specific task used in the experiment, linking task requirements to assessment standards; (b) integrated in any type of feedback on performance given to participants, in order to adequately frame the task during its completion; (c) presented clearly to participants in order to guide performance and strategy self-monitoring.*

### 2.3 The relation achievement goals - performance

The manner in which achievement goals affect individual performance represents a focal point of interest in both theoretical and methodological approaches. As goals are generally conceptualized in terms of envisioned outcomes, positive or negative, these outcomes are generally related to performance. While a direct link between goals and performance is difficult to ascertain, methodological approaches focus on how goals must be constructed in order to aid high levels of achievement. We next concentrate on research regarding this relation, in the achievement goal paradigm; we attempt to integrate relevant findings on the relation goals- performance in other goal paradigms.

The most complex research findings on the relation goals – performance come from the goal-setting approach (Locke & Latham, 1990). As previously discussed, goal-setting theory (Locke & Latham, 2002) analyzes structural characteristics of goals that facilitate or inhibit attainment of performance outcomes. Locke and Latham (2002) point out that experimental and field study in this paradigm indicate that people seem to have higher levels of performance when pursuing specific and difficult goals, which are assigned adequate personal commitment and capability beliefs referring to their pursuit. It is important to note that goals in the goal setting paradigm always encompass *task requirements* and include in their very formulation expected task outcomes. By comparison, achievement goals rather focus on a *general strategy* in pursuing an activity, through choice or assignment of mastery versus performance focus. The differential dynamics of task goals versus achievement orientations has not yet been approached in the achievement goal literature, hence limiting analysis of goal – performance relations.

Both models agree that goals have a directive and energizing value for individual behavior, being linked with task persistence and use of task-relevant knowledge and strategies. As we focus on the relation achievement goals – performance, we must approach how performance is associated with conceptualizations of competence. The core of achievement motivation literature relies of development and demonstration of competence, defined in terms of outcomes, through success and high ability levels in a set of activities or tasks

(Plaut & Markus, 2005) or in terms of processes that ensure a gradual progression toward success (or failure). Hence, competence means high level performance, with achievement goals being linked with specific activity requirements that guide competence development. Elliot (2005) notes that an exclusive analysis on the impact of achievement goals on performance only through the lenses of competence standards can be somewhat limitative. He acknowledges the importance of other constructs, like self-efficacy, self-presentation, self-assessment, impression management in understanding this relationship (Elliot, 2005).

Extant research studies on achievement goals in the mastery – performance paradigm investigate the goals – performance relation, but their formulation does not include or assess task specific elements. In order to adequately chart this complex relation, we analyze methodological concerns of these studies through two criteria: *performance indicators* and *performance contingencies*.

### 2.3.1 Performance indicators

Performance indicators are always linked to *specific task requirements*. In research studies on achievement goals such tasks differ in complexity and difficulty, ranging from Stroop tasks (Van Yperen & Renkema, 2008), lexical decision tasks to more complex puzzle-type activities (Elliot & Harackiewicz, 1996), concept-formation tasks (Elliott & Dweck, 1988), or domain specific activities like solving math problems (Barron & Harackiewicz, 2001; Middleton & Midgely, 1997), or attaining psychology course requirements (Elliot & Church, 1997).

As the relationship between achievement goals and performance represents one of the main topics of interest in mapping the effectiveness of achievement orientations, the manner in which performance is defined and operationalized is of utmost importance. Grant and Dweck (2003) observe that the level of difficulty and challenge posed by an experimental activity greatly influence how individuals approach and solve the given task, with personal involvement having a deep impact on effort and strategy allocation. The chosen level of task complexity and domain specificity also affects individual performance in an activity. Previous experience, perceived competence in a task-domain, activity-relevant self-efficacy and outcome expectations, emotional and behavioral strategies to approach a task category are just a few variables which can moderate the role of achievement goals on performance.

We next attempt to map how *performance indicators*, which we define as *specific outcomes and outputs of task completion*, can be best tracked in relation with achievement goals. As presented in the introductory theoretical chapter, goal setting research has focused more extensively on the analysis of optimal task characteristics which influence the impact of goals on performance (for extensive reviews see Locke & Latham, 2002, 2006). Therefore, some of the following theoretical and methodological considerations reflect research in this paradigm, because achievement motivations studies have not systematically analyzed the role of task characteristics in the relation goals – performance.

Selection of *task specifications and characteristics* always influences how achievement situations are experimentally constructed and how individuals process mastery versus performance goals.

## Task complexity

Task *complexity* represents an important aspect to be considered when designing experimental contexts that analyze the relation achievement goals – performance. In educational milieus task diversity and relational links with domains of interest for participants have been proven to enhance task involvement and persistence (Marshall & Weinstein, 1984; Nicholls, 1989; Rosenholtz & Simpson, 1984). In experimental contexts such demands are hard to meet. Of course we must acknowledge that choice of complexity levels is always calibrated according to participant characteristics (global developmental and domain specific) and research aims. The former aspect can greatly influence perceptions and strategies individuals already have when pursuing a task experimenters label as complex. Herein lays the problem: individuals can have different levels of previous experience in approaching a type of activity. More ecologically relevant tasks are associated with preexisting strategies, attitudes, and achievement goal orientations. We view this aspect as a major limitation of studies that employ complex, ecologically relevant tasks (e. g. solving Math problems, extracting main ideas from a written text, finding synonyms and antonyms for different words).

The impact of achievement goals on performance is contextually analyzed, linked to a specific activity. When using ecologically relevant tasks we do not control how much of the effect is related to the experimental goal induction and how much of it is due to preexisting achievement patterns for that task category. *Though methodological debates on achievement goals do not approach this aspect, we believe that in order to analyze in more depth how achievement goals impact performance from a process view, experimental tasks must be of moderate complexity and non-verbal in nature. Such tasks can be more independent from interference due to previous experiences of individuals, which can refer to preexisting achievement patterns, problem solving strategies, self-efficacy, outcome expectations, and so on.*

## Task difficulty

Task *difficulty* is another aspect relevant for designing an experimental approach on the relation achievement goals – performance. Tasks low in difficulty are usually associated with reduced involvement of participants over longer periods of time. Tasks high in difficulty can elicit negative emotional reactions and attempts to disengage from the activity when performance levels are perceived as low (Locke & Latham, 1990). We believe that an adequate level of difficulty is related to the length of the experimental procedure and to levels of task complexity and novelty for participants. Research on achievement goals postulates that mastery goals are linked with increased persistence in approaching



difficult activities, with some studies specifying that interest mediates this relation; performance goals are more effective than mastery goals when task interest is low (Elliot, Shell, Bouas, & Meyer, 2005; Sansone & Thoman, 2005; Smith, Sansone, & White, 2007).

Some experimental studies in the achievement motivation paradigm use task difficulty as a dependent variable, in order to investigate how differential presentation of task difficulty level influences changes in objective difficulty. Senko and Harackiewicz (2005) investigated the relation between task interest and task difficulty in a mediational analysis on the role of mastery versus performance orientation on task performance and interest. Participants were presented with different levels of goal difficulty regarding the (same) task they were about to perform. Results indicated that participants assigned a difficult mastery goal and those assigned a performance-approach goal did better than those given a standard mastery goal. From both a goal-setting perspective and an achievement goal one, level of task difficulty is mainly linked to structural characteristics of goals (how a goal is presented) and to a lesser extent to structural dimensions of the task itself. Some studies employ more phases in task presentation, in order to accustom participants to task requirements, with the training phase(s) integrating a reduced level of difficulty than the intervention phase (where achievement goals are introduced) in order to control for over-learning effects (see section on types of tasks).

Regarding the issue of how difficult an activity should be in order to best analyze the impact of achievement goals on performance, no clear prescriptions can be extracted from existing methodology. As presented above, the types of tasks used in achievement goal experimental studies can vary on a multitude of dimensions, with some studies capitalizing on task ecological value, while others on clear operational mapping of task components. The former better approximate real-life contexts, while the latter offer more accurate control of task components. Task difficulty can arise from the extent to which participants have preexisting strategies of approaching an activity, like solving a crossword puzzle or finding synonyms/antonyms for different words. Those who have been previously involved in ecological activities bearing similarity to the experimental tasks may find them less difficult than those who have not been confronted with such activities. This is one important reason why some researchers employ tasks with reduced face validity, specifically constructed for the experimental situation, with predefined and controlled structural elements and performance requirements. *We believe that in experimental studies which analyze processes related to achievement goals, task difficulty levels can be better controlled when the task is specifically designed and implemented according to the research aims. In this manner both structural dimensions of the task and specific performance indicators can be clearly defined and monitored and the perceived difficulty of the activity better controlled.*

## Task novelty

Task *novelty* is an aspect closely linked to the previous two dimensions: complexity and difficulty. In order to best analyze how achievement goals impact performance in a task, it is important to note that the novelty level of a task reflects: (a) interest in approaching the task; (b) patterns of achievement orientations for the task; (c) operational strategies in solving the task; (d) persistence in task pursuit. These are but a few elements which are influenced by and in turn influence how novel an experimental activity is for a participant.

In the examination of the relation achievement goals – performance, the level of employed task novelty is best chosen according to the research aims. On the one hand, investigation of how interest for an activity influences the effectiveness of mastery versus performance goals on activity outcomes is best analyzed in tasks with a preexisting level of subjective interest (Senko & Harackiewicz, 2005a). On the other hand, when research focuses on the differential impact of achievement goals on performance controlling for interest variables, high novelty tasks are more appropriate.

*We believe that special attention must be given to the novelty criterion when selecting or developing an experimental task. On the one hand, low novelty activities come with a large array of cognitive, behavioral, and emotional prerequisites, reflecting differential between-subject experiences with that task category. On the other hand, high novelty activities must be carefully designed, in terms of length, complexity, difficulty, and available performance feedback. This is important in order to control possible influences due to reduced interest for the task and negative emotions (e. g. frustration, anger, boredom) arising from lack of strategies in approaching the activity.*

## Choice of most appropriate performance indicators

Various achievement goal studies have included different criteria for measuring performance: physical effort, reaction speed, quantity of output, number of correct responses. In order to adequately assess performance, operational definitions of outcome indicators must be clearly defined in correspondence to task requirements and task dimensions which are most relevant for the study purposes.

For a given task, multiple performance indicators can be extracted, with increased task complexity allowing for segmentation of performance into more components. Though task performance is multidimensional, studies conducted in the achievement goal paradigm usually employ a single performance indicator. We believe that the benefits of using more performance measures for a task are numerous in order to better analyze the impact of achievement goals on performance outcomes. Firstly, appraisal of multiple performance indicators can offer input on how *goal orientations can differentially influence specific outcomes*, hence giving complex patterns of results. Secondly, discrepancies in performance outcomes due to mastery versus performance orientations can apply only to *specific indicators, while for others results can be similar*; this is an important statement and

hypothesis in the quest for operational statements on how achievement goals construct competence in a task. Thirdly, perception and interpretation of a task can focus individuals on different performance dimensions; when we assess just one dimension, we limit their options in *constructing a working representation of the given task* and also limit accessibility to how outcomes can be specifically conceptualized for mastery versus performance focused subjects. *Therefore, we recommend use of multiple performance indicators when charting task outcomes, in both experimental and field studies on achievement goals.*

### 2.3.2 Performance contingencies

In the context of this paper through the term *performance contingencies* we refer to initial (before task on-set), progress-related (during task) or outcome-related (after task completion) strategies and evaluations subjects employ to represent, pursue, and ultimately achieve competence in an activity. They can be mediators or moderators of performance indicators and outcomes. As previously detailed, they reflect behavioral, emotional or cognitive personal responses associated with a type of achievement goal, but are not directly related to task outcomes. In experimental and field studies, choice and appraisals of performance contingencies like self-efficacy, task interest, task involvement, and task persistence, can offer a complex and intricate picture of how achievement goals define and influence performance.

Appraisals of performance contingencies are predominantly made through *self-assessments*, in the form of standardized questionnaires or *ad-hoc* scales which are constructed in order to serve the specific purposes of a given study. The *standardized questionnaires* offer limited information for specific tasks, due to their more global nature and predominant focus on individual tendencies toward a class of activities. Their main benefits reside in previous tests of psychometric properties and direct links to theoretical models on the measured construct. For instance, in studies on academic dimensions of achievement, researchers often use scales of academic self-efficacy or task value from the Motivated Strategies for Learning Questionnaire - MSLQ (Pintrich & De Groot, 1990; Pintrich, Smith, Garcia, & McKeachie, 1993). In order to tap into task specific performance contingencies, in some experimental studies researchers construct *ad hoc* specific scales, using either items or scales from standardized questionnaires for specific constructs, or situational and task specific items which appraise performance contingencies in relation to the experimental task they employ (Senko & Harackiewicz, 2005a; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000).

Research studies in the self-determination paradigm also use *behavioral measures* on performance contingencies, in the “free-choice” paradigm (for an extensive review see Rawthorne & Elliot, 1999). In order to analyze task intrinsic interest and commitment, researchers assess effective involvement of participants in a given task, after they exit the experimental context and can choose to get involved in numerous activities, of which one is the target activity. Some studies

assess these free-choice behaviors in laboratory settings, while others do it in the ecological life-milieu of individuals (Ryan, Koestner, & Deci, 1991).

*In order to best analyze the effect of achievement goals on performance contingencies, adequate choice of the specific contingencies must be first performed, based on previous literature review and study aims. Then, the most appropriate measures for these contingencies must be selected. We believe that construction and employment of ad hoc scales offer more task-specific information, as results are easier to be linked to performance indicators, due to a higher level of specificity. When the structure of the research permits, behavioral measures are an important addition, though previous framing of the research can influence involvement in laboratory settings, while real-life factors can impact free-choice behaviors in ecological contexts.*

## 2.4 Self-set versus assigned goals: achievement goal induction strategies

Achievement goal research mostly relies on assigned goals in experimental studies, while correlational and field studies employ standardized assessments of goal orientations. As the focus of this chapter is on experimental approaches of achievement goals we next analyze procedures from this perspective and then briefly review some instruments used in standardized goal assessment.

### 2.4.1 Assigned goals

The bulk of research methodologies on achievement goals rely on assigned goals, which are defined by the experimenter through *framing of a specific task*. This task is usually presented on differential competence coordinates in order to prompt participants in specific mastery or performance orientation. On the one hand, a *mastery framing* involves presentation of task pursuit in terms of self-development and development of competence, compared to previous personal achievement in the given task or with focus on ability/knowledge personal development. On the other hand, a *performance framing* orients the individual on self-other comparisons, with a normative standard specified to different degrees. When performance framing is linked to ego involvement, goal manipulations usually encompass demonstration of self-relevant and valued attributes, like demonstration of intelligence, creativity or cognitive capacity. Rawsthorne and Elliot (1999) refer to this aspect as “a condition in which one’s self-esteem is invested in or contingent on attaining a specified outcome or reaching a certain standard” (p. 327). For instance, Ryan (1982) framed a puzzle-solving task as being a relevant measure of creative intelligence, with participants informed that the task was indicative of their IQ level.

Beyond the general framing of a task, *specific goal induction strategies* can be employed. Before engaging in a given task, participants are presented with verbal instructions on the type of goal they are to follow during task execution. Depending on the type of achievement goals used in research studies, formulation of goals varies in complexity and performance focus. These verbal instructions are usually brief and integrate a specific orientation toward developing or

demonstrating competence in the given task. We next present some relevant goal induction instructions used in research studies on achievement motivation.

In a study focusing on integration of mastery and performance goals into socio-cognitive conflict Darnon and Butera (2007) employed for the mastery condition the following instructions “It is very important for you to accurately understand the aims of this experiment. You are here to acquire knowledge that can be useful to you, to correctly understand the experiments and the ideas developed in the text, and to discover new concepts. In other words, you are here to learn.” (p. 147). For the performance goal condition the researchers gave these instructions: “It is very important for you to accurately understand the aims of this experiment. You are here to perform, to be good, to get a good grade on the multiple-choice test, to prove your ability, and to demonstrate your competence. Experimenters will evaluate your performance. This evaluation has to be as good as possible.” (p. 147).

Poortvliet, Janssen, Van Yperen, and Van de Vliert (2007) examined the impact of achievement goals on task-related information exchange, using two sets of similar tasks; completion of the first set was a training phase, with no goal orientation being given. For the second set of tasks they used the following goal induction procedure: “perform better on your second ranking as compared to your first ranking” (mastery goal) or “perform better on your second ranking as compared to the other’s ranking” (performance goal).” (p. 1439). This type of goal induction was also used by Van Yperen (2003) in a series of studies on task interest and the effects of assigned versus adopted goals on performance. An innovative aspect Poortvliet and colleagues (2007) introduced in the goal induction procedure was that after goal presentation they asked participants to elaborate on the assigned goal, by answering in written two questions relating to those goals, hence aiming at intensifying the goal manipulation.

Senko and Harackiewicz (2005a) analyzed the differential effect of mastery and performance approach goals on interest and performance using a puzzle task. The goal induction procedure was given to participants through a taped message, in order to control for variances due to the manner in which experimenters verbally present these instructions. Participants in all goal conditions first heard the following, general framing message, aimed at providing empirical argumentation for the specific goal instructions that followed: „Previous research has identified different types of goals that people often adopt for an activity like this” (Senko & Harackiewicz, 2005a, p. 1742). For the mastery condition participants heard the following message „One such goal is a “mastery” goal. People who pursue a mastery goal approach the activity as an opportunity to develop their skills. We recommend that you adopt a mastery goal for the next pair of puzzles. In other words, focus on developing a strong command of the word finding strategies that were suggested earlier.” (p. 1742). For the performance approach condition subjects were presented with these instructions „One such goal is a “performance” goal. People who pursue a performance goal approach the activity as an opportunity to test their skill against other people. We recommend that you adopt a performance goal for the next pair of puzzles. In other words, focus on doing better than previous participants.” (p. 1742).

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In an experimental approach aimed at investigating the differential impact on performance at a Scrabble-type task of performance approach, performance avoidance and mastery goals, Elliot, Shell, Bouas Henry, and Maier (2005) employed a goal manipulation procedure previously developed by Elliot and Harackiewicz (1996). Subjects in the two performance conditions were first informed that the activity they were about to pursue was designed to compare the abilities of high-school students in solving the given task. Those in the performance approach group were then told that “previous work had indicated that most high school students are fairly comparable in their ability to solve the problems but that some students stand out because they do exceptionally well. Thus, the session would provide the opportunity “to demonstrate that you are an exceptional problem solver.” (Elliot et al., 2005, p. 634). Students in the performance avoidance group were primed with the following information “previous work had indicated that most high school students are fairly comparable in their ability to solve the problems, but that some students stand out because they do so poorly. Thus, the session would provide the opportunity “to demonstrate that you are not a poor problem solver.” (p. 634). Participants in the mastery condition were informed that the activity they were about to enter was aimed at gathering data on how students react to problems and that they should focus on getting “to know these problems and learn how to solve them well”. (p. 634). The feedback received by students in each group was also framed according to the achievement goals manipulation. For instance, those in the performance avoidance group received feedback on their standing on whether they performed poorly compared to others.

*Induction of an achievement goal orientation is conducted in experimental research through general framing of a given task in terms of competence development or demonstration. This is followed by an achievement goal induction procedure, in which the individual is given a mastery or performance outcome goal, with specification, depending on the theoretical assumptions, of approach or avoidance components.*

### 2.4.2 Self-set goals

Self-set goals are rarely used in research studies on achievement goals. The goal setting approach (Locke & Latham, 1990) makes most use of self-set goals in analyzing how individuals formulate their goals and the impact goal difficulty, specificity and complexity have on performance. In tasks where self-set goals are used, subjects set goals for themselves at the beginning of the *experimental task* (e.g. solving a Math problem) or *real-life situation* (planning a work event, estimating the performance level in a work relevant or academic task). Goals are verbally expressed by the subject and usually put down on a piece of paper. In some studies subjects are asked to detail in written the outcomes they expect after they met the self-set goal, or the subjective significance of a certain goal. In a task of solving a simple Math problem, Phillis and Gully (1997) measured the initial goal participants set for themselves with the following question: “My goal is to get \_\_\_ items right on the 8 minute test trial (fill in the blank with

the appropriate number).” Participants completed the item after a trial period of 5 minutes in which they solved 3 problems. In real-life tasks, goal setting relies on the participants’ adequate self-assessment of previous performance and task requirements. In a study conducted by Hollenbeck and Williams (1987) on self-set goals of retail salespersons, they were required to give an estimate of their sales goals, based on sales volumes they had during the last three months. Each participant was instructed to set a goal for daily sales volume for the next 3 months. Similarly, these values were then multiplied with the number of work days for those months in order to get the value for monthly sales volume goal.

One of the few experimental studies that to our knowledge uses self-set goal in the achievement goal paradigm, was conducted by Van Yperen and Renkema (2008) on the adoption of different achievement goals (Study 2). The researchers used a verbal skills task (Study 2) in order to analyze the goals subjects choose as a function of prior performance (framed as success versus failure) in the task. After a short training phase and before engaging in a second stage of the activity, they were recommended to choose one of four goals, formulated in the 2X2 achievement goal framework. Subject selected their goal from the following options: „‘To perform better than the average total score in your norm group’ (performance-approach), ‘Not to perform worse than the average total score in your norm group’ (performance-avoidance), ‘To perform better than your total score in Version 1’ (mastery-approach), and ‘Not to perform worse than your total score in Version 1’ (mastery-avoidance)” (Van Yperen & Renkema, 2008, p.264).

## 2.5 Assessment of achievement goals through questionnaires

In correlational and field studies conducted in the achievement motivation paradigm, an *individual’s mastery versus performance orientation*, with approach and / or avoidance valences measured, is usually assessed by means of standardized instruments, mainly questionnaires. These questionnaires reflect domain specific tasks or allow specification for certain domains, like school subject matters, sport activities, organizational tasks. Formulation of different achievement goal orientations are similar to those used in experimental studies. In a comprehensive analysis of achievement goal measures, Jagacinski and Duda (2001) investigate the validity and possible uses of three major instruments: the Motivational Orientation Scales (MOS), developed by Nicholls and colleagues (Nicholls, 1989; Nicholls et al., 1985; Duda & Nicholls, 1992), the Patterns of Adaptive Learning Survey (PALS) personal achievement goal orientation scales developed by Carol Midgley and colleagues (Midgley, Maehr, Hicks, Roeser, Urdan, Anderman, & Kaplan, 1996), and the General Learning and Performance Orientation Scales developed by Button and colleagues (Button, Mathieu, & Zajac, 1996). The first two instruments are specific for academic goal orientations, while the last can be used across domains.

Another important scale, widely used in research studies in the last decade is the Achievement Goal Questionnaire – AGQ developed by Elliot and

colleagues (Elliot & McGregor, 2001; Elliot & Moller, 2003). The AGQ is a measure of achievement goal orientation in the 2 (mastery versus performance) X 2 (approach versus avoidance) paradigm elaborated by Elliot and colleagues (Elliot, 2005; Elliot & Thrash, 2002; Elliot, 1999). A version of the AGQ was adapted by Finney, Pieper, and Barron (2004) for a general academic context.

We will not focus on the specific psychometric properties of these scales, but only on the general principles which guided appraisals of personal achievement goals through questionnaires. Items reflecting individual achievement goals are elaborated based on the specific theoretical definitions of achievement each author adheres to. They are mainly statements referring to how individuals view competence in a specific domain or on a general level and how they perceive and / or approach tasks based on this definition of competence. Each individual assesses how true / relevant / representative / important each achievement goals dimension is for him. While most methodological approaches support the elaboration of domain specific instruments to assess achievement orientations (for a comprehensive debate see Elliot, 2005), Jagacinski and Duda's (2001) comparative analysis of instruments points out that "although most existing measures of goal orientations are situational specific, it would seem feasible to develop a general scale that may be as predictive as the more context-specific assessments." (p. 1036).

## **2.6 Methodological dimensions in experimental studies on achievement goals: some concluding remarks**

The present chapter has analyzed methodological approaches employed in experimental studies on achievement goals. Table 2.1 summarizes the aspects discussed in this chapter.

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**Table 0.1 Relevant dimensions for experimental analysis of the relation achievement goals - performance**

<p><b>Experimental conceptualizations and appraisals of achievement goals</b></p>	<ul style="list-style-type: none"> <li>- A <i>competence relevant context</i> is constructed through integration of assessment criteria for performance, on different levels of pre-set standards (absolute, intrapersonal, normative). Pre-set standards must be:             <ul style="list-style-type: none"> <li>(a) defined for the <i>specific task</i> used in the experiment, linking task requirements to assessment standards;</li> <li>(b) integrated in any type of <i>feedback on performance</i> given to participants, in order to adequately frame the task during its completion;</li> <li>(c) <i>clearly presented</i> to participants, in order to guide performance and strategy self-monitoring.</li> </ul> </li> </ul>
<p><b>Performance indicators</b></p>	<p>They refer to <i>specific</i> outcomes and outputs of task completion and are inherently linked to task structure, with analysis of the following components:</p> <ul style="list-style-type: none"> <li>- <i>Task complexity</i>. Experimental tasks must be of <i>moderate complexity and non-verbal in nature</i>; such tasks can be more independent from interference due to previous experience of individuals, which can refer to preexisting achievement patterns, problem solving strategies, self-efficacy, or outcome expectations.</li> <li>- <i>Task difficulty</i>. In experimental studies which analyze processes related to achievement goals, task difficulty can be better controlled when the <i>task is specifically designed</i> and implemented according to the research aims. In this manner both structural dimensions of the task and specific performance indicators can be clearly defined and monitored and the perceived difficulty of the activity better controlled.</li> <li>- <i>Task novelty</i>. Low novelty activities come with a large array of cognitive, behavioral, and emotional prerequisites, reflecting differential experiences with that task category. High novelty activities must be carefully designed, in terms of length, complexity, difficulty, and available performance feedback; this helps the control of possible influences due to reduced task interest and negative emotions arising from lack of strategies in approaching them.</li> </ul>
<p><b>Performance contingencies</b></p>	<ul style="list-style-type: none"> <li>- <i>Initial</i> (before task on-set), <i>progress-related</i> (during task) or <i>outcome-related</i> (after task completion) strategies and evaluations subjects employ to represent, pursue and ultimately achieve competence in an activity. They can be mediators or moderators of performance indicators and outcomes.</li> <li>- Adequate choice of the <i>specific contingencies</i> must be first performed, based on literature reviews and study aims.</li> <li>- Construction and employment of <i>ad hoc scales</i> offer more task-specific information, as results are easier to be linked to performance indicators, due to a higher level of specificity.</li> <li>- <i>Behavioral measures</i> of performance contingencies are an important addition, though previous framing of the research can influence involvement in laboratory settings, while real-life factors can impact free-choice behaviors in ecological contexts.</li> </ul>



## CHAPTER 3



### BE THE BEST: MASTERY VERSUS PERFORMANCE GOALS IN COMPETITIVE CONTEXTS



### **3.1 The dynamics of achievement goals in competition framed contexts**

The dichotomy mastery versus performance orientation, in its multiple definitions and terminologies (Dweck, 1986; Elliot, 1997, 2005; Nichols, 1984), relies on the differential cognitive representation of an activity. Process and/or outcome dimensions are guided by a dominant focus on learning how to do the task better or on comparing one's performance with that of others.

The mechanisms involved in these differential goal orientations have been widely researched, in both domain-specific activities and in experimental contexts (Nichols, 1984; Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007; Senko & Harackiewicz, 2002, 2005). In domain-specific settings research has focused on school learning (Meece & Miller, 2001; Seifert, 1996; Wolters, Yu, & Pintrich, 1996), work behavior (Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000; Vandewalle, 1996), social interactions (Linnenbrink & Pintrich, 2000; Maehr & Midgley, 1991). While ecological investigations tap into real-life contexts and activities, their inherent complexity makes an accurate analysis of variables very difficult. Each context is constructed on multiple variables, of which we can operationally differentiate and control but a few. As Elliot and Thrash (2001) noted, one of the main problems with investigating the dynamics of achievement goals relies in the "shortage of precise, clear theoretical statements" (p. 140). In our opinion, this quest for precision and accuracy in analyzing how achievement goals influence performance must first rely on an analysis of their impact in more clearly defined tasks.

#### ***3.1.1 Mastery versus competition orientation***

Achievement goal orientations guide the development and expression of competence in specific tasks (Elliot, 2005). A competition goal orientation focuses on demonstration of competence, while a mastery goal basically resides on development of competence (Ames, 1992; Dweck & Elliot, 1983; Pintrich, 2000). The former can be defined and measured on criteria of self-presentation

(e.g. How intelligent does this make me look?) or normative evaluation (e.g. How much better/worse am I compared to others?). The latter focuses on self-improvement and procedural mastery of a given task (e.g. How much have I learnt from this activity?).

In the present experimental study we focused on the normative dimension of competition goals, which are usually defined through a comparison reference point, the “norm” against which an individual’s performance is measured.

For clarity, in the remainder of the present paper we present performance goals with a normative comparison focus interchangeably as *competition or performance goals*, while goals with an emphasis on ability development are presented as *mastery goals*. We previously reviewed the approach versus avoidance distinction; in the present research study we only focus on the *approach* dimension of both mastery and performance goals.

### 3.1.2 Defining a competition context

Performance goals are defined through a context of competition, where an individual’s performance is evaluated on predefined normative standards, which specify desired levels of competence. For instance, in classroom contexts the grading system offers a stable and clear-cut competence standard. In the same school milieu the development of specific abilities (e.g. verbal, numerical, social) is monitored and assessed according to predefined performance indicators for optimal behavioral outcomes depending on age-graded requirements and educational level of students. As for a *reference group*, in real-life settings individuals usually compare their performance to a clearly defined criterion, which can variously refer to colleagues, friends, classmates, and so on. The dynamics of mastery goals in competition contexts, though, cannot be as clearly charted, as intrapersonal standards for competence development reflect highly idiosyncratic patterns of previous experiences with activities, learning contexts, and personal representations of self development.

Experimental research on achievement goals mainly focuses on differentially framing an activity through performance/comparison goals (the subject’s performance versus a normative group’s performance, a desired optimal level of performance, a competition among individuals) or mastery goals (the subject’s performance as a marker for learning more about the task at hand, as a means of self-development, as progress toward the development of a personally relevant ability).

As recent theoretical and methodological debates regarding the dynamics of achievement goals have pointed out, the functional values and benefits of performance versus mastery goals is not as clear-cut as initially presented (Meece, Anderman, & Anderman, 2006; Pintrich, Conley, & Kempler, 2003; Schunk & Pajares, 2005). Whether we discuss ecologically relevant classroom goals or experimental achievement contexts, there are myriads of mechanisms individuals employ when defining, constructing or integrating a goal and then acting upon this cognitive representation of desired processes or outcomes. The

distance between a goal and its projection into action is rather difficult to chart. On the one hand, researchers have limited instrumental capacities in analyzing the previous experience (at cognitive, behavioral or emotional levels) subjects possess about specific activities. On the other hand, subjective representations of activities cannot be fully integrated in structural and procedural methods of assessing performance in an activity.

Elliot, Shell, Bouas, and Meyer (2005) map the main structures and processes involved in achievement goals into: (a) standards for evaluating competence; (b) public or private nature of competence evaluation; (c) type of processing and engagement required for attaining competence; (d) interest value of the task; (e) timing and source of competence feedback; (f) time-frame of competence outcomes; (g) presence or absence of instrumentality.

We view competence as related to performance outcomes and evaluation dimensions that give meaning and value to specific performance levels. Whether we investigate mastery orientations or performance/competition goals, a standard point is always present, providing the necessary frame for analyzing and measuring progress. Therefore, we believe that the mere presentation of a normative criterion influences choice and formulation of achievement goals and their subsequent impact upon performance. A very interesting aspect from this perspective resides in investigating how competition defined contexts modulate the relation achievement goals - performance. Task representation always includes context representation. Adequate mapping of the specific context offers better understanding of the mechanisms individuals employ for translating an achievement goal into action involvement and measurable performance.

In order to closely analyze how achievement goals impact upon performance, rules of psychological research recommend adequate formulation of research variables and control of other possible factors that could modulate their impact and subsequent assessment (Hinkelman & Kempthorne, 2007). Capitalizing on previous research (Elliot, 2005; Grant & Dweck, 2003; Senko & Harackiewicz, 2005b), we define a competition relevant context through the following indicators: (a) *presentation of the task* with an inherent normative comparison reference; (b) specification of the *normative reference criteria*, through operational conceptualization of relevant comparison dimensions; (c) construction of an *achievement identity of the reference group* (who they are in terms of their activity performance); (d) *evaluation feedback* of the subject's performance against the performance of a reference group. We believe that the influence of achievement goals upon task performance and performance contingencies changes greatly when a competition context is constructed on these complex indicators. Most experimental approaches on achievement goals do not focus on actually simulating a competition context, and rather introduce some elements, assessed as having high discriminative power. These elements can refer to presentation of the participant's ranking in a group of peers or the assessment of the subject's performance standing in a normative classification system. Hence, the manner in which mastery versus performance goals influence task performance and outcomes *in situ* in competition contexts remains an underexplored dimension of achievement goals.

### 3.1.3 *The dynamics of mastery goals in a competition context*

Research studies have shown that goals which orient individuals toward mastering a task in terms of self improvement and ability development tend to be associated with higher activity involvement and persistence, resistance to distracters and negative feedback, choice of self-relevant strategies for approaching current tasks (Dweck & Leggett, 1988; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz, Barron, & Elliot, 1998). Though the efficacy of mastery goals has been long hailed in achievement motivation literature, to our knowledge, their impact has not yet been researched in contexts which are strongly framed as competition contexts. Experimental methodological approaches usually employ a differential induction of achievement goals, by presenting an activity's purpose in terms of ability development or ability demonstration (on self or normative reference standards).

An important issue here remains how a focus on task mastery occurs in contexts where competition relevant cognitive and behavioral structures are strongly activated. Simply put: how strong is a mastery orientation when the context is structured in terms of competition? This is an essential question not only for experimental research, but also for applied interventions. Classroom contexts have a very strong competition orientation, mainly derived from the inherent grading system and dominant teaching styles that encourage comparisons among students.

Recommendations for applied interventions stress the importance of encouraging a mastery orientation in students (see the TARGET model developed by Carol Ames, 1992), but these type of goals must be developed in such a manner that they short-circuit the impact of a learning context immersed in competitive structures. As longitudinal studies have shown, younger children display greater levels of mastery goals for academic learning, which are slowly replaced by performance-competition goals (Koller, 2000). It therefore seems that competition goals are stronger than mastery goals, or in any case, they are more adaptive when students focus on high achievement of task requirements.

An important finding in this debate was reported by Grant and Dweck (2003), who showed that mastery goals have stronger positive relations to performance measures (Chemistry course grades) when a high degree of challenge is present, when processing of complex or difficult material is needed, or when the learning task itself is personally valued. The mediational analysis conducted by these researchers was employed controlling for SAT score, gender, and previous experience with the specific subject course matter (Chemistry).



### **3.1.4 Performance indicators, performance contingencies, and goal orientations**

The present research studies focus on the link between achievement goals and actual performance. While the ultimate purpose of all achievement goal studies is to map how different goal orientations influence performance, results in this area are limited and somewhat indirect. As we next discuss, research studies rather showed differential impact of achievement goals upon performance contingencies, and not so much upon actual performance indicators. By *performance contingencies* we refer to initial (before task on-set), progress-related (during task) or outcome-related (after task completion) strategies and evaluations subjects employ to represent, pursue and ultimately achieve competence in an activity. If we use task performance as a reference point, we consider that performance contingencies can refer to both antecedents and consequences of performance, with achievement goals influencing and modulating their impact at both points. They can be, but are not necessarily connected to actual performance, as we have shown in the previous chapter. Performance contingencies are very complex, and their relations with achievement goals must be investigated in specific contexts, for specific types of activities.

In analyzing achievement motivation patterns in school settings, Meece, Andermann, and Anderman (2006) observe that an envisioned positive relation between mastery goals and academic performance has reduced empirical support (Barron & Harackiewicz 2001; Elliot & Church 1997; Herman et al. 2005; Pintrich 2000; Skaalvik, 1997).

Research studies on academic learning have rather shown the positive impact of mastery goals on multiple performance contingencies, with results being replicated for diverse educational levels and subject areas. Students with a mastery goal focus show increased persistence in activities with a high level of difficulty (Elliot & Dweck 1988; Stipek & Kowalski 1989), state high levels of task involvement, persistence and effort (Grant & Dweck 2003; Harackiewicz et al. 2000; Miller et al. 1996; Wolters 2004), and employ learning strategies which are facilitative of conceptual understanding and recall of information (Ames & Archer 1988; Elliot & McGregor 2001; Grant & Dweck 2003; Green & Miller 1996; Meece et al. 1988; Meece & Miller 2001; Nolen 1988, 2001; Nolen & Haladyna 1990; Wolters 2004). Mastery goals are also associated with positive perceptions of academic ability and self-efficacy (Meece et al. 1988, Midgley et al. 1998, Roeser et al. 1996, Wolters 2004). On a similar note, Rawsthorne and Elliot (1999) point out that mastery goals support self-determination and autonomy, while performance goals are rather linked with evaluative pressure and performance anxiety.

Performance goals have a more controversial impact on various performance contingencies, with studies initially indicating their debilitating influence on students' learning strategies, and conceptual understanding (Graham & Golan 1991; Nolen 1988). The distinction approach-avoidance in achievement goals has done some justice to performance goals. A growing body of research showed that performance approach goals have beneficial effects on performance

contingencies; performance avoidance goals have a mainly negative influence on the same contingencies (Elliot et al. 1999; Harackiewicz et al., 2002).

How is performance usually assessed in achievement motivation studies? In classroom studies performance is usually appraised through grades, exam scores, or results on achievement tests (SAT, ASVAB, etc.). These individual performance indicators are then correlated with goal orientation profiles, assessed either globally, but more frequently domain-specific, school subjects or specific types of activities. This line of correlational research suggests that only performance goals with an approach valence component (the person is setting the goal to outperform others, thus focusing on approaching success) are positively related to actual academic performance, when initial performance levels are controlled for (for a review, see Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002).

In experimental research, the link between achievement goals and performance can be investigated more clearly, through well-defined activities, with operational performance makers. As reviewed by Grant and Dweck (2003), representative examples of tasks used in experimental studies are: puzzles (Elliot & Harackiewicz, 1996), concept-formation tasks (Elliott & Dweck, 1988), sentence-combining tasks (Zimmermann & Kitsantas, 1999), math problems of various levels of difficulty (Barron & Harackiewicz, 2001), or execution of course work (Elliot & Church, 1997).

Depending on the specifics of the task, performance indicators can refer to: rate of correctness in solving a task or activity (Senko & Harackiewicz, 2005a; Van Yperen & Renkema, 2008 – Study 2), type of strategy chosen or employed in an activity (Renkema & Van Yperen, 2008), answer rapidness, level of collaboration or communication with peers (Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2007).

Most experimental studies use one performance marker, while subjective perceptions of performance are assessed through self-report items that subjects fill after completion of the experimental activity. By using one measure for performance assessment, researchers limit performance to a one-dimensional construct, with the dimension they choose being a unique marker for mapping its link to achievement goals. We believe that one-dimensional assessments of performance reduce the complexity of analyses on achievement goal orientations. For the present experimental approach we chose to assess performance through two objective indicators – rapidness and accuracy of responses – in order to offer a more detailed image of the differential impact of achievement goals upon performance.

On the one hand, it seems that mastery goals guide slower progress toward higher levels of performance, but they facilitate gradual selection of more challenging tasks, heightened persistence in the face of distracters, construction or choice of more complex and personally relevant strategies to approach tasks (Ames, 1992; Elliott & Dweck, 1988; Meece, Blumenfeld, & Hoyle, 1988; Nolen, 1988; Urdan, 1997).

On the other hand, as debated before, there is reduced consistency regarding the impact of performance goals. Some studies indicate that performance approach goals positively influence task involvement and performance (Bouffard,

Vezeau, & Bordeleau, 1998; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Harackiewicz & Elliot, 1993). Other studies can't discern a different impact of mastery versus performance approach goals, and view just performance avoidance goals as being negatively related to task performance (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Middleton & Midgley, 1997; Skaalvik, 1997; Urdan, 2000; Wolters, Yu, & Pintrich, 1996).

Though we live in a social environment with a strong comparison orientation, there is little agreement on how adaptive it is to shape our goals to this orientation. When we analyze achievement goal dynamics from a performance perspective, we start by acknowledging the relevance of contingency elements, as both antecedents and consequences of performance. We choose to investigate how performance, self-defined goals, and contingencies interact, focusing on two different performance indicators: accuracy and rapidness.

### **3.2 STUDY 1a. - Development of the experimental procedure**

In order to control the variability in participants' previous experiences with a certain type of activity or process, we aimed at constructing a task which is less saturated in this factor, but still complex enough to be challenging for subjects. As we wanted to accurately assess multiple performance indicators in the task, as a function of different goal orientation inductions, we designed a computerized task.

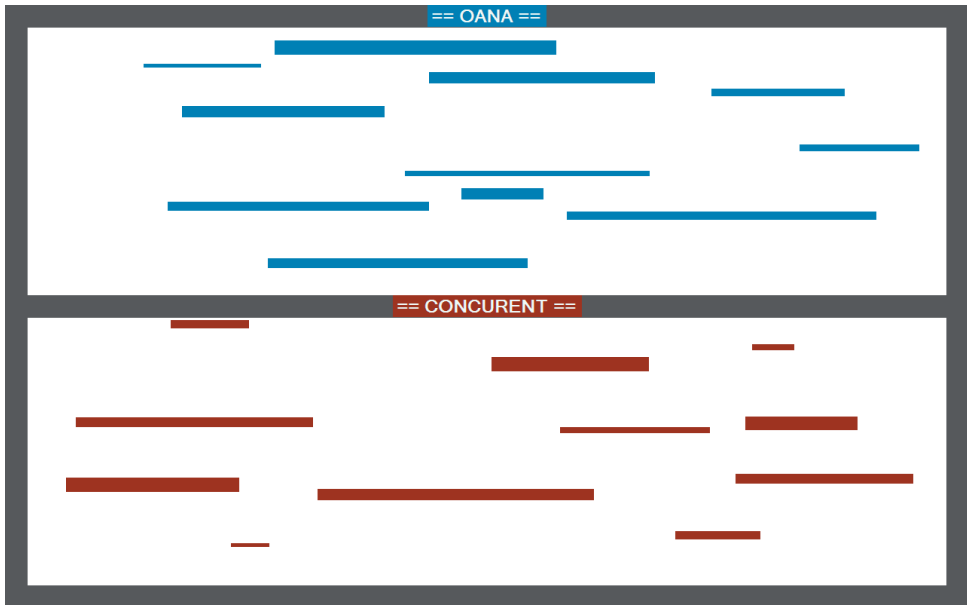
The types of stimuli and organization of the procedure is based on the task Oettingen, Bulgarella, Gollwitzer, and Henderson (2004) reported to have used when analyzing the impact of a competitive motive on an already activated action goal. During the development of the task, we aimed at constructing a software program which has increased customization possibilities.

#### ***3.2.1 Experimental stimuli and software requirements***

The computer application was developed with Visual Studio 2005 in C#, using the .net framework. In order to run on a computer, .net framework 2 or a more recent version needs to be first installed. The operating system requirements are: Windows 98 or a more recent version. The minimal hardware requirements are: Pentium 233 MHz processor, 64 MO RAM, 1.5 GO available on the hard-drive.

The stimuli are sets of parallel horizontal lines, which differ in length, width and distance from each other. These varying characteristics are randomly generated by the program. One set of lines appears at a time. The task is designed to have 2 phases. In both phases the computer screen is horizontally divided in two. In the upper half we present the participant's task, while in the lower half we have the task of the "competitor", a preprogrammed response of the computer. In order to make it clear for participants on which side of the monitor they work,

his/her surname appears above his “work-space”, while the name “competitor” appears above the other half of the screen, as presented in Figure 3.1.



**Figure 3.1 Presentation of the task on-screen**

### ***3.2.2 The task and experimental procedure***

The participant and the simulated “competitor” are both performing the same task, for the types of stimuli that we previously described. The task is as follows: the subject must decide whether on his segment of the monitor, for each set of lines that is presented there are more than 10 lines (participants have to press key A), or less than 10 lines (participants have to press key L). Each set of lines is presented for a short period of time, which we decided upon after the pilot study. After the set of lines disappears, an automatically generated message appears in red on the upper right corner of the screen, saying “Push one of the keys to give an answer”. Subjects cannot move on to the next set until they produce an answer for the current set. The experimental task is identical for all phases of the experimental procedure.

The number of lines (minimum and maximum number of lines between which the computer can randomly generate sets of lines), exposure time per set, types of feedback messages, and percentage of sets with feedback are all adjustable.

We next detail the basic mechanism of the experimental procedure, in order to facilitate understanding of its mechanics. Further specifications will be provided when the experimental studies are discussed, varying on the independent variables for each study.

Apăsăți tasta A dacă în partea de sus a ecranului sunt mai mult de 10 linii

Apăsăți tasta L dacă în partea de sus a ecranului sunt mai puțin de 10 linii

Numele

Prenumele

Data nașterii

Sexul  Masculin  Feminin

Start Iesire

Data testării: 1/29/2009 5:35:04 PM

Figure 3.2 Personal data screen

Participants are first instructed to fill in some personal data: family name, surname, date of birth and sex, as can be seen in Figure 3.2. They are informed about the segmentation of the screen: the upper side is where their task the lines appearing in the upper in the lower screen (i.e., the same sets of lines are presented at the same time) are *those of another participant who performed the same task*. There is no other person, only, as previously discussed, a preprogrammed response pattern.

In the first block of trials, the simulated other, “the competitor”, supposedly responds slower (i.e., the lines in the lower half of the screen disappear slower than those of the participant). In the second block of trials, however, the simulated participant responds faster (i.e., the lines disappear faster than those of the participant). In the first block of trials no computerized feedback is given to participants during the task, but the competitor is always slower than the subject.

In the second block of trials, for all experimental groups false negative feedback regarding the subject’s performance compared to the performance of the “competitor” is given for 75% of trials. The feedback is identical for all experimental groups: “Better than you”, written in red on the competitor’s quadrant, under the name “Competitor”.

For each phase of the procedure the software records the response time of the participant and the correctness/accuracy of his answer. Response *rapidity* is computed as the time elapsed between the stimuli onset (the moment when one set of stimuli appear on the screen) and the moment in which the participant presses one of the designated keys (A or L). The *accuracy* of responses refers to

whether the participant correctly approximated the number of lines in one set. These are the two dependent variables in this procedure. They are recorded in a separate file for each participant.

## 3

### 3.2.3 *Pilot study*

In the pilot study we wanted to investigate whether the procedural global mechanics of the task are adequate and to further adapt task presentation and task settings to subjects' observations and strategies.

#### *Aims of pilot study*

In the pilot study we aimed at analyzing and testing the following aspects regarding the experimental procedure: (a) most adequate exposure time for stimuli; (b) number of stimuli on screen in a set; (c) specifics of feedback messages; (d) number of stimuli sets in a phase; (e) level of instruction comprehension of participants.

#### *Participants*

The sample consisted of 41 high-school students, ranging in age from 16 to 18 years ( $M=16.8$ ). They were 11<sup>th</sup> and 12<sup>th</sup> grade students from theoretical high-schools in Cluj-Napoca and Arad. From the participants 20 were males and 21 females. Data from two subjects was lost due to computer malfunctions; therefore the final sample consisted of 39 subjects.

#### *Design and procedure*

For the pilot study we constructed a basic experimental design with one independent variable – type of goal orientation that had 2 modalities: mastery orientation and performance/competition orientation. Participants were randomly assigned to one of the two experimental conditions. The experimental procedure was conducted by two experimenters in the high-schools' computer laboratories, in groups of maximum 6 participants, with space of at least 1.30 meters between participants. The activity's purpose was presented as an investigation of student learning.

#### *Organization of the activity*

The experimental procedure comprised 2 phases. In each phase 20 sets of lines were presented, with exposure time for each set of one second. For the competitor, exposure time for the sets of lines was three seconds at Phase 1 and 800 milliseconds at Phase 2.

In each set there was a minimum of 7 lines and a maximum of 13; the number of lines in a set was randomly generated by the program, with the

specification that there never were 10 lines in a set. The same rules regarding number of lines in a set applied for the sets of the competitor, with the specification that the competitor never had the exact same set at one exposure as that of the participant.

The experimental procedure lasted approximately 20 minutes for a group. The first phase introduced the task, with no goals orientation, while the second phase differentially oriented participants toward the task or competition with the competitor.

### *Task presentation*

For both experimental groups the content of the activity was presented as follows: “For this activity the screen of the computer is horizontally divided in two: in the upper part contains what you do, while in the lower part is what another student who participates in this study does. We generally called this other student “the competitor”. This activity has 2 phases, during which you have to do the same task. This task consists of the following: on your side of the screen sets of parallel lines will appear. For each set of lines you have to decide whether there are more than 10 lines in that set (you press key A), or less than 10 lines (you press key L). The sets of lines disappear quickly; after a set disappear the computer informs you, in the upper left corner “Push one of the keys to give an answer”. You cannot move on to the next set if you don’t give an answer for the current set. The competitor does the same type of task, in the same time-frame like you. Therefore, sets of parallel lines will also appear on his side of the computer. As you give your answer for a set, you have to wait for the competitor to give his answer, and only afterwards you will move on to the next set.”

### *Goal assignment*

The assignment of a specific goal was similarly organized for both experimental groups, based on the previously reviewed research literature on goal induction strategies. Hence, we oriented subjects in the mastery goal group to focus on “doing the task as well as you can” and those in the performance goal group on “outperforming the competitor”.

### *Instruments/Measures*

*Response rapidness.* Response rapidness was recorded in seconds and milliseconds (e.g. 1.45 = 1 second and 45 milliseconds), as the interval between the moment the set appeared onscreen and the moment when the participant pushed one of the designated keys (A or L). A separate response rapidness measure was recorded for each set of lines.

*Response accuracy.* An answer was coded as accurate when the participant’s response was a correct approximation of the number of lines in a set (more than 10 or fewer than 10).

### *Main conclusions of the pilot study*

We focus the discussion of pilot study on the study objectives we previously presented. For the *exposure time in stimuli sets presentation*, at the debriefing session after activity completion subjects reported to have constructed strategies to approach the task. This was done by trying to count the number of lines on screen or create a mental image of each set, and then try to approximate the number of lines. In order to prevent such strategy development we decided to decrease the exposure times of each set to less than one second, with shorter exposure times at Phase 2, to control for habituation effects.

The *number of stimuli on screen in a set* was too discrepant in the pilot study, with sets including less lines being coded easier and assessed as “less than 10 lines”, due to differences in how much screen space they occupied. This was partly controlled by the fact that lines were at variable distances from each other. In order to further control the difficulty of the accuracy dimension of performance, we decided that in the next studies we will present 9 to 11 lines in a set, to make decisions more difficult and increase task information processing requirements for participants.

For the *specifics of feedback messages*, we decided to increase the size of the feedback message in Phase 2, in order to make it visually more poignant and reduce participants’ tendency to focus only on their side of the screen and ignore the screen of the competitor.

We evaluated the *number of stimuli sets in a phase* for the pilot study as too high at Phase 1, where no manipulation occurred. Hence, we decided that in order to control for habituation and over-learning effects, for future studies we will decrease the number of set to fewer than ten when no manipulation is done. This was operated in an attempt to control the probability that subjects construct a procedural strategy on approaching the task, which could interfere with the experimental manipulations.

The *level of instruction comprehension of participants* was adequate, subjects reporting to have understood the requirements. The only addendum we decided to take was to allow participants to write on a piece of paper the key they had to press for answering, as some had difficulty on adequately remembering while performing the task. Another aspect we introduced for future studies was the instruction: “Do not talk to yourself aloud during completion of this activity, as this will disturb the other participants”. As some subjects involuntarily verbalized their reactions and the activity was completed in groups, we found this as aiding the procedure.

Analysis of the procedural characteristics for the experimental task led to the following observations:

- a. achievement goal assignment – we developed more elaborate induction strategies for the specific type of achievement goals;
- b. number of stimuli sets in Phase 1 – not more than 10 sets if no manipulation occurs in this phase, in order to prevent over-learning effects; we evaluated that there can be more than 10 sets of items in Phase 1 if we introduce an experimental manipulation in this phase;



- c. characteristics of the competitor – in order to specify the activity as competition-relevant (to activate a competitive context), more elements must be added to offer the competitor an identity and make his presence more poignant.

### **3.3 STUDY 1b - Mastery versus performance goals in a competitive context: the role of competitor's performance evaluation**

In this experimental study we aimed at investigating how differential goal orientations influence individual performance in a context where competition is strongly activated. By simulating a different participant who performs on screen the same task, at the same time as the experimental subjects, we intended to strongly activate a competitive motive. We introduced the other participant as the “competitor” and we further specified his identity in terms of performance, as the worst or the best competitor who had completed this activity. In the achievement goal literature performance goals are often associated with a comparison context; therefore we aimed at investigating whether the “presence” of another participant framed as a competitor influenced individual performance indicators in an activity. While a competitive setting is supposed to increase the effectiveness of performance goals, how does it impact upon a mastery goal orientation?

#### ***3.3.1 Research objectives and hypotheses***

On one hand the study focused on the influence of differential achievement goal orientations (focus on mastery versus competition) upon task performance outcomes. On the other hand, we investigated how the framing of a competitor's competence evaluation (best versus worst competitor) modulates feedback processing and task performance. We aimed at investigating how competitor evaluation modulates the impact of different types of goals (mastery, competition or no preset goal) upon task performance.

Firstly, we were interested in analyzing the manner in which differential framing of the competitor's competence standing, as best versus worst competitor, influences the impact achievement goals have on performance for a competition-framed activity. As we constructed a competition context, we hypothesized that performance goals facilitate high levels of task performance in this type of activity to a higher degree than mastery goals or self-set, task requirement driven goals. Also, as we introduced the competitor evaluation at Phase 2, we wanted to see whether differential evaluation of the competitor's performance influences performance outcomes to a higher degree when a performance goal is pursued compared to when a mastery goal is given or no achievement goal is preassigned.

Secondly, we investigated within subject performance changes during systematic exposure to competition-framed tasks (from Phase 1 to Phase 2). Competition framed activities are usually presented in existing literature as being

more facilitative for performance goals. Hence, we were interested in analyzing whether this type of goals lead to increases in task performance levels through phases of activity execution, to a higher degree than when a mastery goal is assigned or no achievement goal is given.

Thirdly, we examined differential speed-accuracy tradeoffs for the different achievement goals and competitor performance evaluation; we were specifically interested in how performances versus mastery goals differentially determine an efficient tradeoff between the two assessed performance indicators.

Fourthly, we analyzed post hoc self-assessed performance contingencies for mastery goals compared to performance goals and no pre-assigned goals. For this objective we expected that regardless of the competence framing of the competitor, mastery goals are linked to more task enjoyment and involvement, reduced perceived task difficulty compared to competition goals and no pre-set achievement goals. Also, in accordance with existing research findings, we expected mastery goals to determine the highest levels of intentionality and commitment to repeat the activity (time projection and frequency), compared to competition goals and no pre-set goals. Finally, we predicted a positive correlation pattern between levels of reported task enjoyment and involvement, for both phases of the activity.

The research objectives and hypotheses are succinctly presented below.

*Objective 1. Analysis of the manner in which differential framing of the competitor's competence standing, as best versus worst competitor, influences the impact achievement goals have on performance for a competition-framed activity.*

H1.1. Performance goals facilitate high levels of task performance in a competition framed activity to a higher degree than mastery goals or self-set, task requirement driven goals.

H1.2. Evaluation of the competitor's performance and achievement goal induction jointly influence performance outcomes in a competition framed activity.

*Objective 2. Investigation of within subject performance changes during systematic exposure to competition-framed tasks.*

H 2.1. In a competition-framed activity different achievement goals and competitor evaluations lead to different patterns of within individual increases in task performance levels through phases of activity execution.

*Objective 3. Examination of differential speed-accuracy tradeoffs for the different achievement goals and competitor performance evaluations.*

H 3.1. Differential achievement goal orientation and competitor performance lead to specific patterns of speed-accuracy tradeoffs in performance indicators.

*Objective 4. Investigation of self-assessed performance contingencies for mastery goals, compared to performance goals, and no pre-assigned goals.*

H 4.1. Achievement goals and the manner in which a standard for comparison is framed jointly contribute to how much people report enjoying a competition-framed activity.

H 4.2. Mastery goals determine the highest levels of intentionality and commitment to repeat the activity (time projection and frequency), compared to competition goals and no pre-set goals.

### 3.3.2 Methods

#### *Participants*

The sample consisted of 164 high-school students, ranging in age from 16 to 19 years, with a mean age of 17.7. They were 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> grade students from theoretical high-schools in Cluj-Napoca, Romania. From the participants 82 were male and 82 female. Students were recruited in their school and took part in the study on a voluntary basis, being adequately informed on the confidentiality of their responses.

#### *Design and procedure*

For this study we constructed a 2X2 factorial experimental design with the independent variables: type of goal orientation (mastery orientation versus performance/competitor orientation) and the competitor's evaluation (best competitor versus worst competitor). In order to have a baseline level of task performance, we also introduced a group where no goal orientation or competitor evaluation was given; subjects in this group were only presented with the task requirements.

The number of subjects in each experimental condition is presented in the table below:

**Table 3.1 Latin square of experimental conditions**

Competitor evaluation	Best competitor	Worst competitor
Mastery orientation	<b>G1</b> n=33	<b>G2</b> n=34
Competition orientation	<b>G3</b> n=33	<b>G4</b> n=34

In the baseline group (**G5**) we had 30 subjects (n = 30).

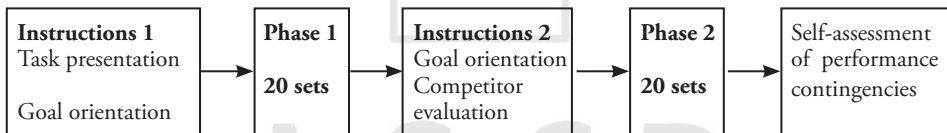
Participants were randomly assigned to one of the five experimental conditions. The experimental procedure was conducted in the high-schools' computer laboratories, in groups of maximum 6 participants, with distance of at

least 1.30 meters between participants. Similarly to the pilot study, one principal experimenter coordinated the experiment and gave the instructions, with an assistant aiding at the organization of the laboratory environment. Upon entering the laboratory, participants were informed that they were going to perform an activity as part of a research on student learning. They were each seated in front of a monitor, with the personal information page of the program opened. The experimenter instructed participants to pay attention to instructions.

### *Organization of the activity*

The experimental procedure comprised 2 phases. In the first phase we introduced the goal orientation variable, while in the second phase we added the competitor evaluation. In each phase we presented 20 sets of parallel lines. The minimum number of lines in a set was 9 and the maximum 11; there never appeared 10 lines in a set.

For the first phase, exposure time of a set was 800ms, while in the second set we reduced it at 700ms in order to control for habituation and over learning effects. After a set of lines disappeared from the screen, the following message appeared in red in the upper left corner of the subject's quadrant: "Push one of the keys to answer". The competitor's set remained on screen between 1500-1800ms, in the first phase and between 400-500ms in the second phase. In the second phase, after the competitor's set of lines disappeared, in 75% of cases the feedback message "Better than you" appeared in red in the lower quadrant. The experimental procedure lasted 25 minutes for a group. The procedure followed the process depicted below:



**Figure 3.3** Process depiction of the experimental procedure

#### *Task presentation*

The general format of the activity's presentation is similar to that used in the pilot study.

#### *Goal induction*

The induction of a specific goal orientation was similarly organized for all experimental groups.

First, when the general aim of the activity was introduced, depending on the type of goal framing, we differentially presented the activity as being related to "how students learn when they compete with other students" (competition

orientation) versus “how students learn to improve their capacities” (mastery orientation).

Second, after the task was presented, participants had to list three reasons why a competition orientation (for the competitor orientation) or a task-ability development orientation (for the mastery orientation) is important in their everyday activities. Each participant was given a piece of paper, on which the following instructions were presented:

- For the competitor orientation: “List 3 reasons why it is important for you, in your everyday life, to pay attention to what others do (friends, family, class-mates) and frequently compare what they do with what you do.”
- For the mastery orientation: “List 3 reasons why it is important for you, in your everyday life, to focus on learning as much as you can from what you do and gradually improve your capacities.”

The experimenter read the instructions aloud and informed participants that they had 2 minutes to list the three reasons. This type of induction of a specific goal orientation aimed at activating more ecological, personally relevant representations of competition versus personal development orientations. After participants listed this information, the experimenter stated: “in this activity it is important that you focus on doing better than the competitor”, or “in this activity it is important that you focus on learning how to do the task well”. Participants were asked to fill in the personal information on the computer screen (surname, name, date of birth, sex). Then the experimenter repeated: “Remember, the most important thing in this activity is to...” followed by the specific goal. We instructed participants to push the Start button on the computer screen in order to commence the first phase of the activity. They were informed that when the first phase was over they should stop and await further instructions. The baseline group was presented only with the description of the task.

When the first phase of the procedure ended, the goal orientation was reaffirmed again, together with the competitor evaluation.

### *Competitor evaluation*

The task of the “competitor” was presented in the first phase of the procedure, but no evaluation framing was given to his performance. In the second phase 2 new elements are introduced: (a) the identity of the competitor, as being the most competent student as assessed with this program or the least competent as assessed with this program so far; and (b) the feedback regarding the participant’s performance compared to the competitor’s performance, through the message “Better than you” that appeared in red in the competitor’s quadrant every time he supposedly did better than the participant. The feedback was a preprogrammed message, generated to randomly appear in 75% of the sets, following the same pattern for all experimental conditions. As far as the global evaluation of the competitor, this segment was introduced by the experimenter

in the following manner: “In the second part of this activity, your competitor is the best (respectively worst) student that did this activity so far. In the lower quadrant you will see exactly his task. Every time this best/worst competitor has better performances than you, the message “better than you” will appear in red in his part of the screen.

3

### *Performance contingencies*

In order to succinctly assess subjective task contingencies, we designed the *Performance Contingency Scale* - PCS, which is a self-assessment basic tool to aid subjects in evaluating some relevant subjective markers associated with performance. Relying on previous literature and experimental data on self-assessment measures in achievement goals studies (Butler, 1987; Elliot & Dweck, 1988; Nicholls, 1984; Zimmermann & Kitsantas, 1999) we briefly assessed:

- a. perceived task difficulty (2 items) - assessed on five-point Likert scales;
- b. task enjoyment (2 items) - assessed on five-point Likert scales;
- c. task involvement (2 items) - assessed on five-point Likert scales;
- d. intention to repeat the task (1 item) - Yes/No format;
- e. frequency of future reengagement in the activity (1 item) - forced choice format (choice between once, twice or more than two times);
- f. time-projection of repetition for future reengagement in the activity (1 item) - (choice between now, this week or sometime in the future).

For items assessed on a Likert scale, a rating of 1 indicated the minimum level and a rating of 5 represented the maximum level. For the “Frequency of future reengagement in the activity” item, we used the following coding: “once” = 1, “twice” = 2 and “more than two times” = 3. For the “Time-projection of repetition future reengagement in the activity” item, we used the following coding: “now” = 3, “this week” = 2 and “sometime in the future” = 1.

In constructing this brief self-assessment tool, we aimed at tapping differences in self-assessed performance contingencies, in a concise format.

### *Instruments/measures*

*Response rapidness.* Response rapidness was recorded in seconds and milliseconds (e.g. 1.45 = 1 second and 45 milliseconds), as the interval between the moment the set appeared onscreen and the moment when the participant pushed one of the designated keys (A or L). A separate response rapidness measure was recorded for each set of lines.

*Response accuracy.* An answer was coded as accurate when the participant response was a correct approximation of the number of lines in a set (more than 10 or fewer than 10).

*Performance Contingency Scale (PCS).* We used the PCS to analyze post-hoc several relevant performance contingencies.

### 3.3.3 Results

We analyzed the data using SPSS 17 for Windows. An alpha level of .05 was used for all statistical tests, if otherwise not specified. For effect size we computed partial eta squared values ( $\eta^2$ ).

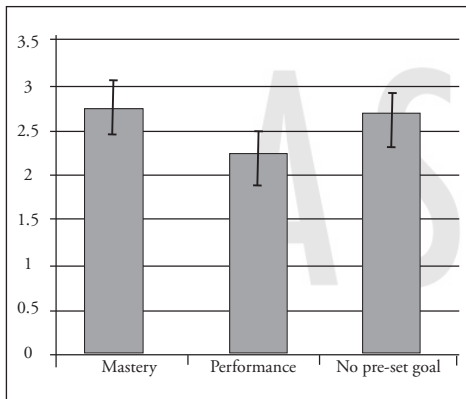
#### 3.3.3.1 Results for performance indicators

Descriptive and inferential statistics for response rapidness and response accuracy were computed excluding the results for the first item at both phases of the experiment. We opted for this in order to control the high between subject variability on this item, which could be due to task accommodation or differential strategies participants used to approach the activity.

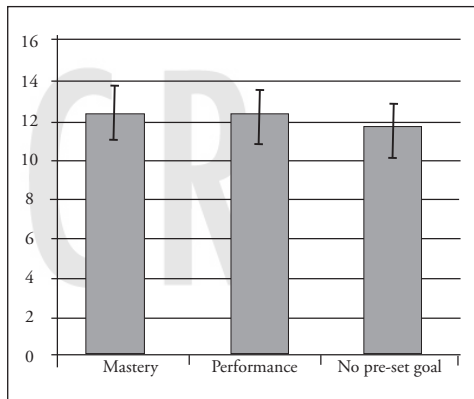
#### EXPERIMENT PHASE 1

##### Descriptive data at Phase 1

As can be seen in Figure 3.4, for **achievement goals**, when participants were assigned a mastery goal they displayed more reduced **response rapidness** at Phase 1 ( $M = 2.72$ ,  $SD = 0.68$ ) compared to performance goal subjects ( $M = 2.21$ ,  $SD = 0.56$ ) and no pre-assigned goal ones ( $M = 2.62$ ,  $SD = 0.64$ ). Mastery goals seemed to direct participants toward approaching the activity sets at a slower pace, while a competition orientation was associated with increased speed in responding at each set of stimuli.



**Figure 3.4**  
Response rapidness on goal orientation groups at Phase 1



**Figure 3.5**  
Response accuracy on goal orientation groups at Phase 1

*Responses accuracy* in Phase 1, as depicted in Figure 3.5 had similar values when mastery or performance goals were assigned, with slightly higher rates for mastery ( $M = 12.23$ ,  $SD = 2.87$ ) compared to competition goals ( $M = 12.17$ ,  $SD = 2.40$ ). The no pre-set goal group (baseline group) presented a lower level of response accuracy at Phase 1 ( $M = 11.83$ ,  $SD = 2.40$ ), compared to the other two conditions.

### *Univariate ANOVA for goal orientation*

In order to verify whether mean differences for goal orientation among experimental conditions in Phase 1 are statistically significant, we computed Univariate Analysis of Variance on each dependent variable (response rapidness and respectively response accuracy). The results yielded significant differences for *response rapidness*,  $F(2, 161) = 12.14$ ,  $p = .000$ ,  $\eta^2 = 0.131$ ; the achievement goal factor accounted for 13.1% of the variance, indicating a medium effect of this variable (Stevens, 2002). Scheffe post-hoc tests indicated statistically relevant mean differences between mastery orientation ( $M = 2.72$ ) and competition orientation ( $M = 2.21$ ) at  $p = .000$  and between baseline (no goal orientation, no competitor evaluation) group ( $M = 2.62$ ) and competition orientation at  $p = .012$ . Mean differences between mastery orientation and no pre-set goal (baseline) group were not statistically significant. Mastery orientated participants responded significantly slower to the set of stimuli compared to comparison orientated subjects, though no significant difference was found between mastery goals and no pre-set goal (baseline) group.

For *response accuracy* we found no significant statistical differences among experimental conditions,  $F(2, 161) = .26$ ,  $p = .76$ ,  $\eta^2 = 0.003$ .

## *EXPERIMENT PHASE 2*

### *Descriptive data at Phase 2*

As depicted in Figure 3.6, for mastery goals the *response rapidness* means in Phase 2 when facing a best competitor ( $M = 1.68$ ,  $SD = 0.49$ ) were slightly lower than those of participants who faced a worst competitor ( $M = 1.79$ ,  $SD = 0.59$ ), with greater dispersion of data in the latter group, as can be seen from the standard deviation values.

Mastery goal participants presented with a best competitor framing responded slightly faster than those presented with a worst competitor framing. On a different note, performance goals were associated with slower response times in Phase 2 when a best competitor was presented ( $M = 1.36$ ,  $SD = 0.58$ ) compared to a worst competitor framing ( $M = 1.06$ ,  $SD = 0.45$ ), the latter being the quickest group of all. In the no pre-set goal, no competitor evaluation group response rapidness ( $M = 1.71$ ,  $SD = 0.55$ ) was closer to that in the mastery goals groups. Similar to Phase 1, performance goals appear to orient participants



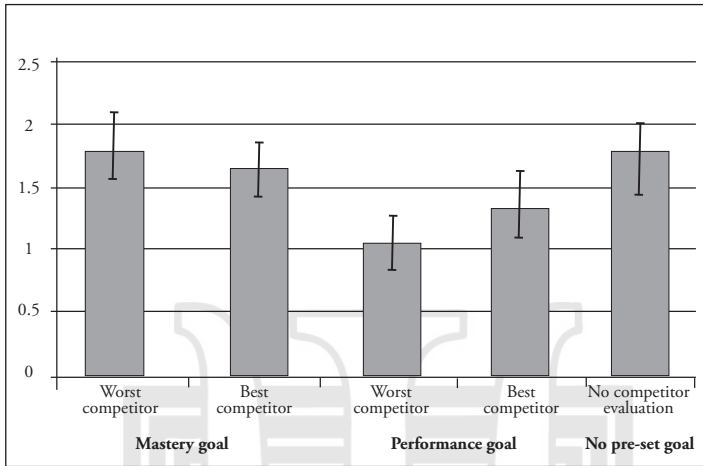


Figure 3.6 Response rapidness on experimental groups at Phase 2

toward performing the experimental task quicker, while a mastery orientation determines slower rates of responses, even compared to the response times in the baseline group, where no goal framing is given.

Visual inspection of response accuracy in Phase 2 (as presented in Figure 3.7) showed similar values when mastery goals were assigned, when facing a worst competitor ( $M = 11.73$ ,  $SD = 2.23$ ), or a best competitor ( $M = 11.87$ ,  $SD = 2.74$ ). This indicates that no relevant differences were induced by the differential competitor evaluation. The performance goal groups' rates of accurate responses were higher for the worst competitor condition ( $M = 12.67$ ,  $SD = 2.05$ ) than for the best competitor framing ( $M = 10.63$ ,  $SD = 2.70$ ), the mean differences being statistically significant,  $t(65) = 3.48$ ,  $p = .001$ .

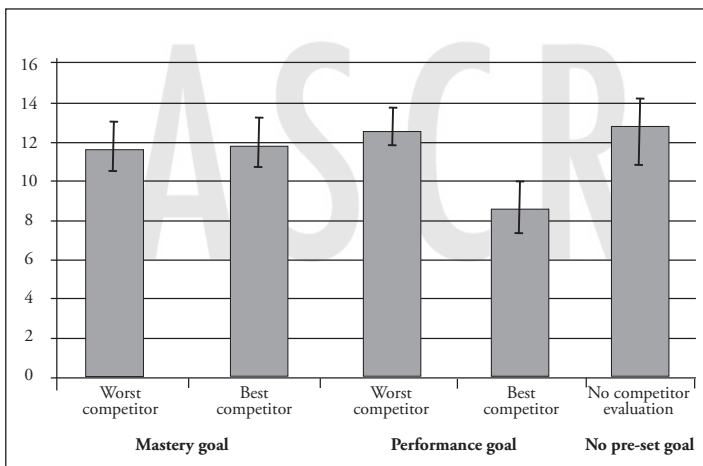


Figure 3.7 Response accuracy on experimental groups at Phase 2

The mean of correct answers in the no pre-set goal, no competitor framing group ( $M = 12.90$ ,  $SD = 2.83$ ) was superior to all other groups, but close in value to the accuracy level of the performance goal facing a worst competitor participants ( $M = 12.67$ ,  $SD = 2.05$ ). It appears that participants who were given no framing of the competitor tended to give more correct answers than those who received such framing. Of all experimental groups, participants in the performance goal orientation with best competitor evaluation had the least correct answers in performing the task.

### *Analysis of Variance for goal orientation and competitor evaluation*

In order to analyze the interaction effects between goal orientation and competitor evaluation and their separate main effects, we computed factorial Analyses of Variance. Response rapidness and respectively response accuracy were dependent variable. Goal orientation and competitor evaluation were independent variables.

There was a significant interaction between goal orientation and competitor evaluation for the measure of *response rapidness*,  $F(1, 159) = 4.75$ ,  $p = .031$ ,  $\eta^2 = .029$ . In terms of effect sizes, the  $\eta^2$  for goal orientation was .029, which indicated that this interaction accounted only for 2.9% of the overall variance. Although ANOVA for interaction between goal orientation and competitor evaluation showed that the means were significantly different, the effect size was small to modest.

For *response accuracy* there was also a significant interaction between goal orientation and competitor evaluation,  $F(1, 159) = 6.27$ ,  $p = .013$ ,  $\eta^2 = .038$ . The effect size was small to modest; the  $\eta^2$  for the interaction was .038, which indicated that this interaction accounted only for 3.8% of the overall variance.

There was a significant main effect for goal orientation for *response rapidness*,  $F(1, 159) = 32.01$ ,  $p = .000$ ,  $\eta^2 = .168$ . In terms of effect sizes, the  $\eta^2$  for goal orientation was .168, which indicated that this factor by itself accounted for 16.8% of the overall variance, hence presenting a large effect. According to Scheffe tests, participants with a competition goal ( $M = 1.12$ ) gave quicker responses compared to participants with a mastery goal ( $M = 1.74$ ),  $p = .000$ . In addition, competition goal subjects overpassed in rapidness the baseline group participants ( $M = 1.71$ ),  $p = .000$ . For response rapidness we found no significant mean difference between mastery goal orientation and no goal orientation induction (baseline group).

We found no significant main effect for *response accuracy*,  $F(1, 159) = 0.11$ ,  $p = .730$ ,  $\eta^2 = .001$ . This points out that there was no overall difference in how correct participants performed the tasks when they were task or competition oriented or had no predetermined achievement goal orientation (baseline group).

For the measure of *response accuracy*, there was a significant main effect for competitor evaluation,  $F(1, 159) = 4.73$ ,  $p = .031$ . In terms of effect sizes, the  $\eta^2$  for competitor evaluation was .029, which indicated that this factor by itself accounted only for 2.9% of the overall variance, thereby amounting to a small

effect (Stevens, 2002). Scheffe tests specified that participants tended to perform the task more correctly when the competitor's performance had no competence framing – baseline group ( $M = 12.90$ ), compared to when the competitor was presented as being the best competitor ( $M = 11.25$ ), difference significant at  $p = .014$ .

No significant main effect was found for *response rapidness*,  $F(1, 159) = 0.95$ ,  $p = .330$ ,  $\eta^2 = .006$ . This indicated that there was no overall difference in how quick participants responded whether they were presented with a worst competitor compared to a best competitor or no competitor competence evaluation (baseline group). Still, an interesting detail was provided by post-hoc Scheffe, which revealed a significant mean difference between no competitor evaluation ( $M = 1.7$ ) and a worst competitor evaluation ( $M = 1.43$ ), at  $p = .05$ . When the competitor was presented as having the worst performance of all students, participants tended to respond more quickly compared to when no such competence framing was ab initio given.

#### *Repeated measures ANOVA for goal orientation and competitor evaluation Phase 1 – Phase 2*

In order to investigate how goal orientation and competitor evaluation (independent variable) influenced intra-subject response rapidness and respectively accuracy (dependent variable) from Phase 1 to Phase 2, we computed repeated measures analyses of variance for each of the dependent variables.

For *response rapidness*, a significant difference appeared between the two phases,  $F(1, 159) = 328.08$ ,  $p = .000$ . In terms of effect size,  $\eta^2$  was .674, which amounted to a large effect, as 67.4% of the variance could be explained by the differences in intra-individual performance between the experimental phases. This difference though, could not be attributed to any of the independent variables or to an interaction between them and may be due to a habituation effect. This habituation effect manifested itself at the level of all experimental groups.

The competitor evaluation variable yielded a significant influence on response accuracy for intra-individual performance between the two phases,  $F(1, 159) = 22.45$ ,  $p = .000$ ,  $\eta^2 = .124$ . For effect size,  $\eta^2$  was .124, which indicated a medium effect, as 12.4% of the variance could be explained by introduction of the competitor evaluation condition.

#### *Analysis of the speed-accuracy tradeoff: the competition performance index*

In order to analyze the tradeoff between speed (response rapidness) and accuracy (response accuracy) when different goal orientations and competitor evaluations are given in a competition framed activity, we computed a *competition index* which reflects performance efficiency in the given task. The competition index was computed as the rapport: mean response rapidness / mean response

accuracy. *Low values* of this competition index indicate more *efficient speed-accuracy tradeoffs*, while *high values* indicate *less efficient speed-accuracy tradeoffs*.

As we mentioned before, most experimental studies employ only one performance indicator when analyzing the impact of achievement goals upon performance, hence offering a one-dimensional image of this relation. In depicting the complex effects of assigned goal orientations on each of the performance indicators, we successfully pointed out that each of them (reponse rapidness and response accuracy) is differentially determined by how achievement goals are assigned and competitors are presented. Performance effectiveness is hence a complex field of analysis, which has not yet been researched in the achievement goal paradigm.

Through investigation of speed-accuracy tradeoffs we aimed at mapping how the two performance indicators influence each other. Initial analysis of the correlation patterns between response accuracy and response rapidness for each phase of the activity revealed negative correlations between rapidness and accuracy at Phase 1 and a positive correlation at Phase 2. Though the correlations were not statistically significant, neither for Phase 1 ( $r = -.08, ns$ ), nor for Phase 2 ( $r = .06, ns$ ), they bring into attention an interesting aspect. It appears that the direction of the relations between the two indicators changes from one phase to the other, in that at Phase 1 slower responses are rather associated with inaccurate responses and viceversa, while at Phase 2 slower reponses were rather related to more accurate responses.

For *Phase 1* of the experimental task we computed the competition index; Descriptive data indicates that performance goals lead to higher levels of efficiency in speed-accuracy tradeoffs, while mastery goals and no pre-set achievement goals display similar, less efficient levels of speed-accuracy tradeoffs (see Figure 3.8).

In order to analyze whether these differences are statistically significant, we computed a Univariate ANOVA, with competition index as dependent variable and goal orientation as independent variable. We found that differences



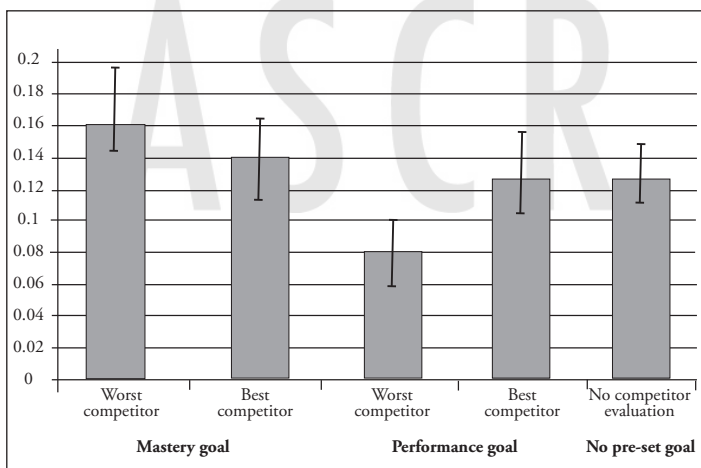
**Figure 3.8** Competition index on experimental groups at Phase 1

in competition indices among goal orientations are statistically significant,  $F(2, 161) = 4.90, p = .009, \eta^2 = .05$ . Tukey tests pointed out that mastery goal participants tended to display at Phase 1 less efficient speed-accuracy tradeoffs ( $M = .24$ ), compared to competition/performance goals ( $M = .19$ ),  $p = .008$ . It appears that performance goals are more adequate in a competition-framed activity than mastery goals.

For *Phase 2* of the experimental task the performance goal condition led to the most efficient levels of speed-accuracy tradeoff ( $M = .10$ ), compared to the mastery goal ( $M = .15$ ) and baseline condition ( $M = .13$ ) as can be seen in Figure 3.9. It seems that pursuit of a competition goal is a competition framed activity offers the best balance between response rapidness and response accuracy, indicating more accurate responses in a given time-frame. A closer look at competition indices depending on the framing of the competitor pointed out a high difference when participants were presented as competing against a worst competitor ( $M = .08$ ), compared to when they were presented with a best competitor ( $M = .13$ ). The competition index showed more efficient speed-accuracy tradeoffs when individuals faced a worst competitor than a best competitor.

We computed a factorial ANOVA, with competition index at Phase 2 as dependent variable and goal orientation and competitor evaluation as independent variables, in order to verify how performance efficiency is differentially influenced by variations in these factors. The results point out that goal orientation and competitor evaluation interact in determining different competition index levels,  $F(1, 159) = 8.01, p = .005, \eta^2 = .04$ . As provisioned in the visual analysis of descriptive data, the competence evaluation of a competitor in a competition-framed activity influences the manner in which achievement goals impact on speed-accuracy indices.

Though we did not find a significant main effect of competitor evaluation on the competition index, main effect results for goal orientation replicated our findings from Phase 1, with a stronger effect size,  $F(1, 159) = 21.79, p = .000, \eta^2 = .12$ . Post-hoc Tukey tests showed that performance goals ( $M = .10$ )



**Figure 3.9** Competition index on experimental groups at Phase 2

determined significantly more efficient speed-accuracy tradeoffs than mastery goals ( $M = .15, p = .00$ ) and no pre-set goals ( $M = .13, p = .05$ ).

### 3.3.3.2 Results for performance contingencies

A number of 161 subjects from the total of 164 correctly filled in the Performance Contingency Scale (PCS). Data from 3 subjects was not properly listed and thus we did not include it in the database.

For analysis of internal consistency of the scale we computed Cronbach's Alpha for the items which requested quantitative responses (9 items). We obtained an acceptable overall value of Alpha of .80 ( $N = 161$ ).

#### *Descriptive analyses of performance contingencies*

##### *Perceived task difficulty*

Mastery goal participants, regardless if they had faced the best or the worst competitor found the task less difficult compared to the other groups, with identical levels for perceived difficulty on both phases. This could indicate that an orientation toward ability development contributes to the reduction of perceived difficulty of an activity. Those who were assigned a mastery goal with a best competitor evaluated the task as equally difficult for both phases ( $M = 2.67, SD = 1.19$ ), the same being the case with mastery goals participants against a worst competitor ( $M = 2.63, SD = 0.94$ ).

Perceived task difficulty slightly increased from Phase 1 ( $M = 2.75, SD = 1.07$ ) to Phase 2 ( $M = 3.00, SD = 1.29$ ) for students who were given a performance goal with a best competitor. For those with an equal goal but a worst competitor difficulty was equally rated for both phases ( $M = 3.12, SD = 1.00$ ). For the no pre-set goal, no competitor evaluation condition task difficulty decreased from Phase 1 ( $M = 3.30, SD = 0.91$ ) to Phase 2 ( $M = 3.00, SD = 1.12$ ). Of all three groups, participants with no pre-set goal assessed the task at Phase 1 as having the highest level of difficulty ( $M = 3.30, SD = 0.91$ ), while at Phase 2 a performance goal against the worst competitor was associated with higher perceived difficulty of the task ( $M = 3.12, SD = 1.00$ ).

An identical mean evaluation for Phase 1 and Phase 2 was found for three conditions, as detailed above. We believe that these results could relate to a strong framing effect of Phase 2 evaluation, as the self-assessment took place after both phases. Nevertheless, the results are interesting in that a mastery goal orientation maintained the level of perceived task difficulty for both types of competitor evaluations, with very similar values for best versus worst competitor.

##### *Task enjoyment*

Reported *task enjoyment* increased only for mastery goal students who faced a best competitor, from Phase 1 ( $M = 2.91, SD = 1.20$ ) to Phase 2 ( $M = 3.15, SD = 1.14$ ), while for the other four groups we recorded a decrease. It can be that holding a mastery orientation while facing a best competitor,

positively influences how much people enjoy what they are doing, even when the competitive activity is simple and novel.

The steepest reduction in reported task enjoyment from Phase 1 ( $M = 3.00$ ,  $SD = 1.21$ ) to Phase 2 ( $M = 2.53$ ,  $SD = 1.56$ ) appeared when we assigned a performance goal with a best competitor. In the no pre-set goal/no competitor evaluation group, participants enjoyed the task slightly more in Phase 1 ( $M = 2.43$ ,  $SD = 1.22$ ) compared to Phase 2 ( $M = 2.25$ ,  $SD = 1.07$ ), though they reported the lowest level of enjoyment of the five groups, for both phases. It is interesting that a mastery orientation with a worst competitor framing led to a reduction in perceived enjoyment; this could be an effect of having introduced the competitor evaluation at Phase 2. Also, continually imposing a performance goal in pursuing a competition-framed activity, with a best or worst competitor in sight, leads to reduced enjoyment as the activity progresses.

It is intriguing that participants in the performance goal with a worst competitor, though reporting a decrease in enjoyment from Phase 1 ( $M = 3.38$ ,  $SD = 1.04$ ) to Phase 2 ( $M = 3.15$ ,  $SD = 1.39$ ), still had the highest levels of task enjoyment of all groups. A possible explanation is that the prospect of going against the worst competitor could have facilitated processing of the “worse than you” feedback.

#### *Task involvement*

The highest level of involvement boost from Phase 1 ( $M = 3.09$ ,  $SD = 1.28$ ) to Phase 2 ( $M = 4.09$ ,  $SD = 0.98$ ) was recorded for mastery goal participants who faced a best competitor, followed by mastery goal students facing a worst competitor. This further sustains our previous observation regarding the positive influence mastery goals have on performance contingencies. When a performance goal was induced, reported involvement in the activity also highly improved from Phase 1 ( $M = 2.50$ ,  $SD = 1.48$ ) to Phase 2 ( $M = 3.28$ ,  $SD = 1.30$ ), when a best competitor was presented. When no achievement goal was pre-set, participants reported the least activity involvement increase from Phase 1 ( $M = 3.13$ ,  $SD = 1.19$ ) to Phase 2 ( $M = 3.29$ ,  $SD = 1.08$ ).

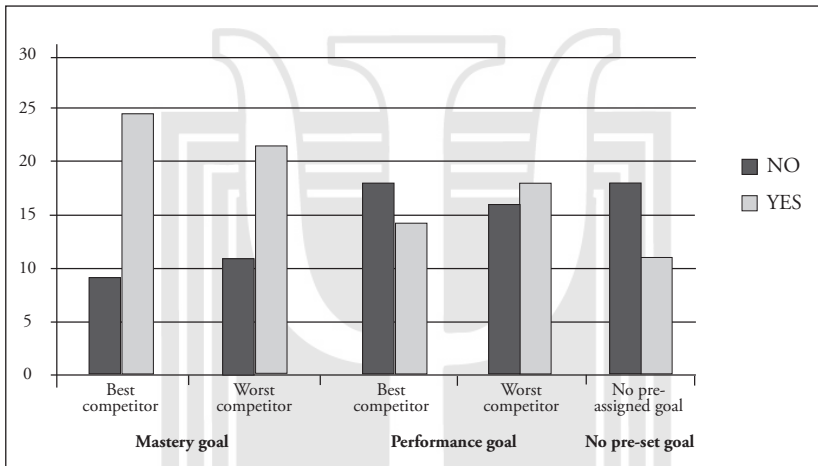
*Task involvement* increased more when participants were presented with the best competitor at Phase 2 than when they faced a worst competitor. It thus seems that high competence framing of the entities people compete against better facilitates performance contingencies than a negative framing or no framing. People seem to perceive an activity with a more positive action outlook when they know who they compete against and they value those that they compete against.

#### *Intentionality and further commitment for task repetition*

A total of 161 subjects correctly filled in the Performance Contingency Scale (PCS).

*Intention to repeat the activity.* Of these, 44.72% ( $n = 72$ ) did not want to repeat the activity again, while 55.28% ( $n = 89$ ) expressed the intention to redo the task.

The frequency of expressed intention to repeat the activity for experimental groups is presented in Figure 3.10. Results suggest that mastery goal participants expressed heightened desire to do the activity again, compared to the performance goal and no pre-set goal ones. To verify whether the differences among experimental conditions are significant in expressing intent to repeat the activity, we conducted a Pearson Chi-Square test, which yielded significant,  $\chi^2(4, 161) = 10.07, p < .05$ .



**Figure 3.10 Intention to repeat activity on experimental groups**

*Time projection for new involvement in activity.* Of the participants, 58.43 % expressed the intention to repeat the activity sometime in the future (n= 52), 10.11 % (n= 9) this week and 31.46 % (n= 28) now.

Figure 3.11 presents the distribution for experimental groups of the time projection regarding new activity involvement. Subjects who held a mastery goal while being presented with a best competitor and those who held a performance goal facing the worst competitor reported to a higher degree intention to repeat the activity “now”, hence showing more operational commitment. To verify whether differences among experimental conditions are significant in expressing intent to repeat the activity, we conducted a Pearson Chi-Square test ( $\chi^2$ ). Indeed, we found differences as highly significant,  $\chi^2(8, 89) = 22.61, p < .005$ .

*Intended frequency for new involvement in activity.* For intended frequency of repeating the activity, 53.93 % (n = 48) participants wanted to do the activity once, 8.99 % (n = 8) twice and 37.08 % (n = 33) more than two times. Figure 3.12 detail the distribution for experimental groups of intended frequency for activity repetition. Mastery goal participants, regardless of the competitor evaluation received, highly expressed the intention to repeat the activity more than two times. Differences among experimental groups regarding projected frequency of task reengagement were statistically significant,  $\chi^2(8, 89) = 27.63, p = .001$ .



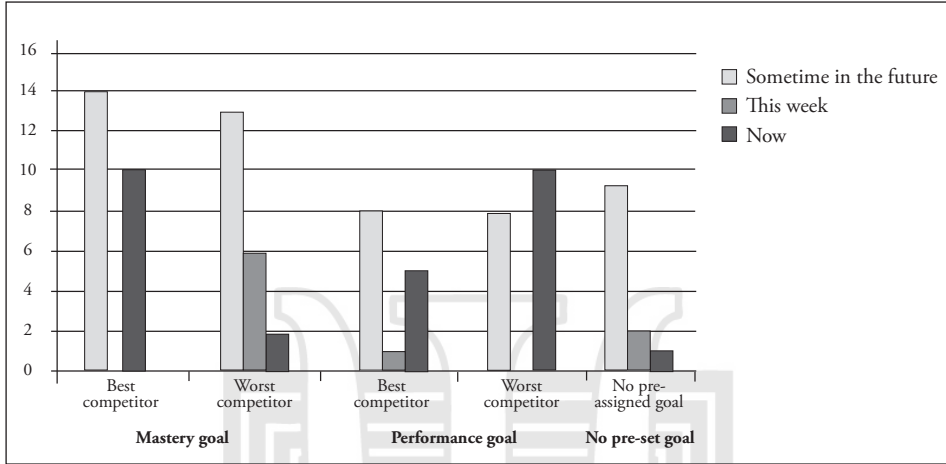


Figure 3.11 Time projection for new involvement in activity on experimental groups

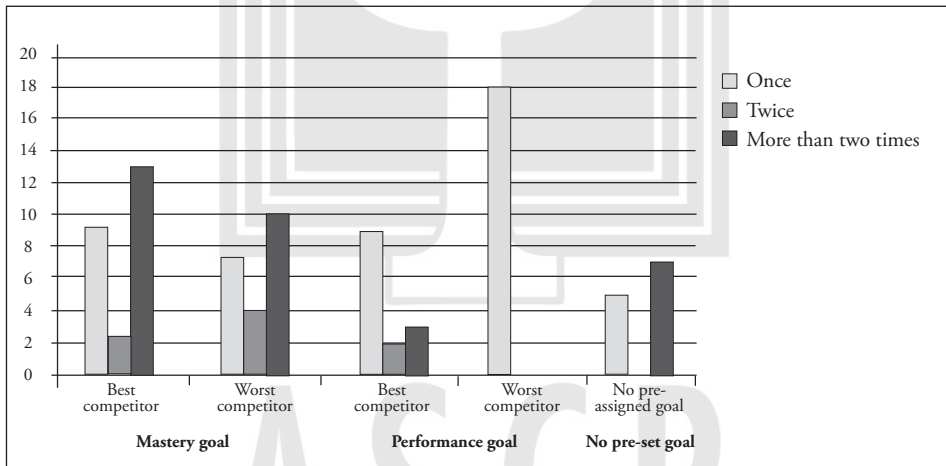


Figure 3.12 Intended frequency for new involvement in activity on experimental groups

*Impact of achievement goals and comparison feedback on performance contingencies*

In order to analyze whether self-reported performance contingencies differ as a function of goal orientation and competitor evaluation, we computed Analyses of Variance, with perceived task difficulty, task enjoyment and task involvement separately included as dependent variable and goal orientation and competitor evaluation as independent variables.

### *Perceived task difficulty*

For task difficulty there was a significant main effect in Phase 2 for goal orientation,  $F(1, 154) = 4.46, p = .039$ , the  $\eta^2$  of .036 indicating a small effect size. According to Scheffe tests, no significant differences were depicted between experimental conditions. We found no significant main effect for competitor evaluation and no interaction effect. At Phase 2, we found no significant main effects for achievement goal orientation -  $F(1, 154) = 2.52, p = .114, \eta^2 = .016$ , competitor evaluation -  $F(1, 154) = .80, p = .370, \eta^2 = .005$ , or interaction effect -  $F(1, 154) = 1.27, p = .261, \eta^2 = .008$ . Scheffe tests did reveal a significant difference at Phase 1 between mastery goal participants ( $M = 2.65$ ), who evaluated the task as less difficult compared to no their pre-set goal counterparts ( $M = 2.91$ ), at  $p = .039$ .

### *Task enjoyment*

For task enjoyment at Phase 2 we found a marginally significant interaction effect,  $F(1, 154) = 3.84, p = .052$ , the  $\eta^2$  of .024 pointing at a small effect size. This supports the hypothesis that achievement goals and the manner in which a standard for comparison is framed, jointly contribute to how much people enjoy a given activity. Post-hoc Scheffe tests indicated that students who were given a mastery goal ( $M = 3.02$ ) reported higher task enjoyment than students who received no pre-set goal ( $M = 2.25$ ),  $p = .037$ . Also, Scheffe tests pointed out that participants who were presented with a worst competitor framing enjoyed the task significantly more ( $M = 3.02$ ) than those who received no framing of the competitor ( $M = 2.25, p = .036$ ). We found no significant main effect for goal orientation or competitor evaluation at Phase 2.

At Phase 1, we found no significant main effects for goal orientation -  $F(1, 154) = 1.09, p = .296, \eta^2 = .006$ , competitor evaluation -  $F(1, 154) = 1.86, p = .174, \eta^2 = .012$ , or interaction effect -  $F(1, 154) = .34, p = .560, \eta^2 = .002$ . Scheffe tests did reveal a significant difference at Phase 1 between performance goal participants ( $M = 3.21$ ), who reported more task enjoyment than those who were not given a pre-set goal ( $M = 2.43$ ), at  $p = .035$ . This difference was not visible at Phase 2, but it indicates that the enjoyment of a competition framed activity is initially facilitated by pursuing a performance goal.

### *Task involvement*

At Phase 2 of the activity we found a significant main effect in task involvement for goal orientation,  $F(1, 154) = 6.98, p = .009$ , the  $\eta^2$  of .043 indicating a small effect size. According to Scheffe tests, students who were given a mastery goal reported significantly more involvement in executing the activity ( $M = 3.89$ ) than those who held a performance goal ( $M = 3.38, p = .033$ ) and marginally significant more involvement than those with no-preset goal ( $M = 3.29, p = .057$ ).

For Phase 1, we found no significant main effects of task involvement for goal orientation -  $F(1, 154) = .39, p = .533, \eta^2 = .003$  or competitor evaluation -  $F(1, 154) = .98, p = .322, \eta^2 = .006$ . We found a marginally

significant interaction effect -  $F(1, 154) = 3.78, p = .056, \eta^2 = .024$ . Scheffe tests did not indicate significant differences between experimental conditions.

### **3.3.4 Discussion**

#### *Multiple indicators for assessing task performance*

As previously discussed in Chapter 1 and 2, different achievement goal orientations are supposed to have differential effects on performance. But what do we understand by “performance” and how do research studies operationalize task performance? The methodologies we reviewed rather focus on performance related contingencies (level of involvement, persistence in task, resistance to distracters, task enjoyment, etc.) than on objective performance indicators. Therefore, they tend to relate goal orientations to personal and contextual attributes. These attributes refer to how confident an individual is regarding the successful outcomes of an activity, what type of task strategies he employs (e.g. planning, time management, elaboration, effort distribution, collaboration), how he evaluates the results of the activity, or what types of emotions are related to specific types of achievement goals.

These contingencies are relevant, but they do not equate to performance assessments; a person can feel very good and be very content about how he approached a task, but his performances in that task can be mediocre or low. The present study tapped into task performance indicators per se, by assessing two relevant dimensions for the designed activity: rapidity and accuracy in solving the task. Task performance can be tracked on multiple dimensions, and it seems that previous research has not thoroughly focused on this aspect. One-dimensional assessments of task performance may favor or be more sensitive to certain goal orientations, neglecting the impact of different goals on other performance dimensions. As the results of our study pointed out, performance goals are associated with very rapid responses compared to mastery goals or no pre-set goals, but they are associated with the most reduced rate of responses accuracy when participants perform against a best competitor. Had we assessed only one dimension, we could not have observed this differential impact on performance.

Another interesting aspect for bi-dimensional assessment of performance resides in changes in response accuracy and rapidness outcomes from Phase 1 to Phase 2 of the experiment. Mastery and competition goals provided by the experimenter differentially influenced the rapidness dimension of performance. Mastery goals led to slower responses, while competition goals were linked to an increase in the rapidness of responses. From Phase 1 to Phase 2, there was a global increase in response rapidness on the patterns previously presented, but in all achievement goal conditions we had a decrease in response accuracy. On the one hand, the increase in response rapidness can be due to a habituation effect, which appeared in all groups. On the other hand, the repeated-measures ANOVA we performed for the accuracy dimension indicated a significant interaction effect of goal orientation and competitor evaluation from Phase 1 to Phase 2. Hence,

introduction of a competence identity for the competitor at Phase 2 had a negative impact upon the achievement goals individuals pursued.

The accuracy dimension of performance was more sensitive to the introduction of a competence framing for the competitor. We depicted both a main effect for competitor evaluation and an interaction effect goal orientation X competitor evaluation at Phase 2 of the activity. It appears that an increase in accuracy is facilitated when no competence framing is given to a normative comparison criterion.

Also, pursuit of a performance goal is associated with more accurate and rapid responses, hence a joint focus on both performance dimensions, when individuals face a worst, not a best competitor. This is a relevant finding on the effect of upward or downward comparisons when a competition goal is in place. Though normative comparison stands at the root of performance goals, as Sullis and Wheeler (2000, 2005) observed, achievement goal theory did not focus yet on the impact social comparison mechanisms have upon this type of goals. We acknowledge that our findings need further testing, but we see it as an important step ahead for methodological approaches of social comparison impact upon performance goals.

Regarding the impact of mastery goals in influencing accuracy of responses, the pattern of results indicated that in a competition framed activity a focus on ability development does not necessarily facilitate achievement of higher levels of performance. But, in line with existing research (Grant & Dweck 2003; Harackiewicz et al. 2000; Miller et al. 1996; Wolters 2004), we did find an increased effect upon performance contingencies. Those who had followed a mastery goal expressed the highest and most specific levels (repetition now and more than one time) of future engagement in the activity. So, it may be that focusing on learning how to do a task in a highly competitive setting does not lead to the highest levels of performance neither for the rapidness, nor for the accuracy of solving it, at least not at activity onset. But those holding such a goal are more prone to “keep on going”, to develop intrinsic motivation for the task through further engagement in the activity and reduced influence of negative feedback or social comparison mechanisms (Rawsthorne & Elliot, 1999).

### *Self-set versus assigned achievement goals in competition contexts*

One of the most intriguing findings of this study resides on the differential patterns of response accuracy related to the no-goal condition. In Phase 1, a no pre-defined goal orientation was associated with less correct responses compared to mastery or goal orientations, while in Phase 2 it presented the highest rate of correct responses, being the only condition where we found an increase in response accuracy compared to Phase 1. In most experimental studies on goal orientation the no-goal or baseline group usually displayed the lowest levels of performance. This effect can be variously explained as being related to inadequate strategies for systematically approaching the target activity and superficial representation of either outcome or process factors which could facilitate goal-oriented behavior. Our results suggest that when a novel task is approached

in a strongly activated competition context, it appears that giving no pre-set achievement goal is beneficial, as it perhaps allows individuals to construct and employ a self-set goal or goals, which are more appropriate for reaching high levels of task accuracy. Other-set goals are not as efficient for this dimension of task performance, because for mastery goals and competition goals we had a decreasing rate from Phase 1 to Phase 2.

Previous research on mastery goals has been inconclusive regarding their impact on performance (Barron & Harackiewicz 2001; Elliot & Church 1997; Herman et al., 2005; Pintrich, 2000). In the activity we designed, the task subjects carried out was: (a) a novel task; (b) a simple task, in which the level of previous experience did not impact strongly on performance; (c) a task where a normative comparison standard was permanently activated through the on-screen competitor. In choosing the types of stimuli for the experimental task, we aimed at reducing as much as possible the impact of previous experience subjects can have with a certain type of activities.

In many experimental studies the tasks subjects solve (puzzles, anagrams, Math problems, etc.) are always linked (or have a great potential to be linked) with prior experiences they had with this class of activities. We believe that many times preexisting achievement goal orientations can influence the processing and implementation of experimental goal framings. For a task (e. g. solving a Math problem) where an achievement goal orientation preexists, an experimental goal manipulation reflects the existing disposition, not a contextual representation of task processes and outcomes.

As Elliot (2005) pointed out “although the achievement goal construct can be utilized at both dispositional and situation-specific levels of analysis, conceptual and empirical considerations seem to suggest that it may be best suited for the situation-specific level” (p. 66). It appears that when performing novel activities with a strong competition framing, where existing cognitive and behavioral task routines are not directly applicable, subjects do not benefit from following assigned mastery goals. They benefit more from setting and following their own personally relevant goals, guided by task requirements. One possible explanation is that in this particular type of context self-set goals help the individual include the novel activity in a class of familiar activities, therefore activating specific strategies of approaching and processing task requirements.

### *The importance of competitor evaluation in constructing performance standards*

An underexplored aspect regarding normative standards for evaluating the relationship achievement goals – task performance resides in the manner in which these standards are usually defined and presented. While most experimental studies construct a normative evaluation by appealing to a reference group that is relevant for participants (e. g. high-school or university students, class-mates, other participants in the research), complex description or simulation on what the normative group's performance is seldom presented.

A notable exception are the interesting research studies conducted by Poortvliet, Janssen, Van Yperen, and Van de Vliert (2007), in which they

3 examined the impact of achievement goals on task-related information exchange. In order to provide a viable reference standard and achievement communication setting, the authors simulated a performance pattern of another participant in the research study, with whom the actual subject was supposed to collaborate and exchange information in solving a given task. As participants had the opportunity to compare their performance to that of the “other”, their openness to communicate and strategies used in achieving a given goal could be better investigated from a process perspective.

Whenever people are exposed to a competitive context, one of the most diagnostic features of this context is the competence level of the group or person they compete against – their competitor(s). In our study we added at Phase 2 a competitor evaluation variable, by differentially presenting the other participant as “the best” or “the worst” that had completed the given activity, with participants in the no-goal group being given no evaluation of the competitor’s performance ranking. Thus, processing of the feedback message “better than you” and contextualization of achievement goals was better rooted and detailed for participants, giving the activity more complexity and relevance.

We found strong interaction effects between goal orientation and competitor evaluation, for both response rapidity and accuracy. Hence, the external reference point offered by an evaluation of the competitor’s performance ranking nuances the impact of achievement goals on performance. For instance, we found that for response accuracy, no competence framing is more effective than a best competitor framing, while for rapidness the perspective of a worst competitor makes subjects respond quicker compared to when no competence framing is presented.

Presentation of the competitor’s performance ranking in the group of students who completed the activity offered an identity to this competitor and further strengthened the competitive setting we constructed. In ecological settings, competition is defined most of the times by how proficient “the competitors” are normatively evaluated, and accordingly their identity is defined by this evaluated proficiency. In is one thing to be compared to the best in a class or group and quite another to compete or have as reference the worst performers in a group. An in-depth analysis of the differential impact of best versus worst competitor evaluation revealed that participants who followed a competition goal and were presented with a worst competitor achieved very good performances for both rapidness and accuracy. These participants were quicker and responded more correctly than participants with a mastery goal who faced a best competitor.

It appears that in this competition context an orientation toward outperforming the competitor is facilitated by trying out against the worst student. We explain this finding in two manners. Firstly, as participants were presented with a novel task, performance enhancement was aided by following a lower standard for comparison rather a high-competence standard, through better control of perceptions of failure/success. Secondly, when the task of the competitor in the lower quadrant of the screen is presented as the work of the worst student to have done this activity, the participant can perhaps more easily disengage from the negative comparison feedback (“better than you”) by

labeling the “competitor” as weak or unskilled. Meanwhile, it is more difficult to disregard the fact that you compete against the best competitor, with performance expectancies being automatically activated by this very prospect. Social comparisons – upward versus downward comparison processes – seemed to mark the manner in which individuals’ task performance fluctuates. While at Phase 1 task and competition goals did not differentiate between performance levels, at Phase 2 the most complex differences on accuracy and rapidness dimensions appeared when the competitor was given a competence identity.

When people cognitively represent an activity’s purpose by the development of personal relevant skills and abilities, a competitor evaluation appears to have little impact on performance, whether it refers to response accuracy or rapidness. This finding is sustained by previous studies on the strengths of mastery goals (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Meece, Blumfeld, & Hoyle, 1988; Rawsthorne & Elliot, 1999). Hence, we reinforce once more the idea that individuals who approach an activity as a context for learning more about how to do it are less vulnerable to social comparisons and normative standards in evaluating their performance. Still, one addendum must be made: these participants had lower performances (for rapidness and accuracy) than self-set/no competitor evaluation and competition goal/worst competitor subjects. Mastery goals appear to make individuals less vulnerable to performance comparisons, but they are not necessarily linked to increased performance, at least not in the type of task we used.

### *Performance contingencies and achievement goals*

The self-assessed dimensions of performance contingencies: perceived difficulty, task enjoyment and involvement, and commitment to further reengage in the activity revealed different patterns for achievement goal / competitor evaluation conditions.

For *perceived difficulty*, as we hypothesized, those who had pursued a performance goal reported an increase in task difficulty from Phase 1 to Phase 2, while for the other condition participants maintained the same ratings for both phases. We found a significant main effect only for goal orientation.

Reported *task enjoyment* increased from Phase 1 to Phase 2 only for mastery goal participants who had faced a best competitor, while the steepest decrease appeared in performance goal – best competitor subjects. For Phase 2 assessments, we found a marginally significant interaction effect for goal orientation and competitor evaluation, with mastery goals and a worst competitor framing leading to higher task enjoyment. Task involvement was significantly influenced by the goal orientation only at Phase 2 of the activity, with mastery goals leading to more involvement than the other goal conditions. Hence, our results confirm the research hypothesis and are in line with findings on the impact of mastery goals upon performance contingencies (Ames & Archer 1988; Elliot & McGregor 2001; Grant & Dweck 2003; Green & Miller 1996; Meece et al. 1988; Meece & Miller 2001; Nolen 1988, 2001; Nolen & Haladyna 1990; Wolters 2004). Also, we found a coherent, positive pattern of reported enjoyment, involvement and

commitment to repeat the activity, which suggests that these contingencies may share similar underlying mechanisms.

The strongest impact of mastery goals on performance contingencies was at the level of intention to further reengage in the activity. In concordance with our research hypothesis, mastery goals determine the highest levels of intentionality and commitment to repeat the activity (time projection and frequency), compared to competition goals and no pre-set goals. Hence, it seems that though mastery goals did not significantly impact objective performance indicators in solving the given activity, they did influence participants' intentionality and commitment for the future pursuit of the task. This is a very important finding, as the experimental activity did not rely on previous achievement representations of the task, and therefore the previous experience bias was greatly reduced. From an achievement goal process perspective it appears that mastery goals influence commitment to an activity even at a base-line, initial learning phase.

### ***3.3.5 Practical implications***

#### *Evaluation of the normative group's level of competence*

In the current research we pointed out that differential framing of a normative group's competence influences the manner in which negative comparison feedback is attended to and how mastery versus competition goals impact on performance. When translating these findings in practice, we recommend that in learning contexts initial activity involvement is facilitated by clear operational definitions of the reference group against whom performance is being evaluated.

On the one hand students must be informed of performance expectancies (how much, when, for how long), level of competence of the normative group (it is one thing to compete against the best, medium or the worst group of students), and performance progress indicators during learning activities.

On the other hand, specialists (teachers, psychologists) must tap into how students perceive the reference group and whether they interpret this normative competence in a specific way, developing specific attributional structures, outcome expectations or self-efficacy beliefs. An in-depth analysis of achievement goals' contingencies greatly facilitates learning in ecological contexts.

#### *Importance of multidimensional evaluations of performance*

The issue of using multidimensional performance indicators in assessing and monitoring competence has a long history in learning and motivation interventions (Elliot & Dweck 1988; Meece et al. 1988, Midgley et al. 1998; Roeser et al., 1996). As we successfully pointed out, one-dimensional evaluations do not fully reflect the complexity of performance outcomes. When accuracy and rapidness are used as performance indicators, an important aspect to be considered is whether increased rapidness facilitates or inhibits increases in



accuracy. In tasks where competition is highly activated individuals may choose to be quick, disregarding accuracy. As we showed, when competition goals are given to participants, they tend to focus on the rapidness of responses, possibly because of interpreting the negative comparison feedback “better than you” in terms of the competitor being quicker than him. Mastery goals on the other hand focus individuals on the accuracy dimension, at the expense of rapidness. Capitalizing on these findings, applied learning interventions at classroom or individual level must identify the relevant performance dimensions they aim at developing in beneficiaries. Then they must differentially determine which of these dimensions are more relevant for mapping progress at specific points in the learning process.

### *Self-set versus other-set goals*

As our results showed, a no-goal condition does not mean the lack of any goal orientation when pursuing a task. In applied settings teachers or psychologists should investigate what type of goals students construct when no goal is given. We believe that whenever individuals start performing a competence relevant task they always operate on a process or outcome achievement goal orientation. Simply put, we always aim at doing something or getting something when performing a task. In our research, participants who were given no predefined goal orientation had the best response accuracy results. This indicates that when no achievement goal is assigned, this does not mean that students do not activate one.

In educational setting, this aspect has been researched from a developmental perspective (Koller, 2000), indicating a tendency of younger students to self-select mastery goals in kindergarten and primary school, while older children rather choose performance goals. Hence, an important practical aspect of our findings resides in balancing assigned achievement goals with self-selected ones. For educational setting, as Meece, Andermann, and Andermann (2006) point out that increased attention must be given to the goals teachers explicitly and implicitly transmit or impose on students.

### **3.3.6 Strengths and limitations**

We ascertain that the activity used in the present research had a limited level of ecological validity. As mentioned before, we consider that process dimensions of achievement goals can be best researched in controlled settings, where adequate analysis of variables can be accomplished. Survey studies can offer limited information on how achievement goals impact performance, with performance dimensions being difficult to monitor in complex, real-life settings. Using school grades or results on achievement tests as performance indicators is a compromise decision, because they are heavily saturated in other personal and contextual factors, like previous ability levels, success/failure experiences with the specific type of activity, attributional styles, task-specific strategies, emotional

valence of the activity. As we discussed before, an achievement goal is always linked to specific contingencies, which display facilitative or inhibitive influences on performance. When these contingencies are multidimensional it is often difficult to separate the impact of goal structures on action implementation and performance.

3 Another problem raised by the present study refers to the dynamics of mastery goals in highly competitive contexts, which represents an underexplored aspect in achievement goal research. How can mastery goals focus the individual on ability development when the context and evaluation criteria are defined by demonstration of ability and competition with others? The multiple goals perspective, of mastery goals being employed simultaneously with performance goals, can offer a more detailed glimpse into how goals function in the achievement of competence (Barron & Harackiewicz, 2001; Pintrich, 2000; Poortvliet et al., 2007; Van Yperen, 2003).

Further research is needed in order to investigate the generalizability of our findings in linking achievement goals and competitor evaluation to bi-dimensional performance outputs. The pattern of possible tradeoffs between rapidness and accuracy in solving a task can represent a focal point of investigation, but we might have to reconsider aspects regarding the novelty and complexity of the experimental stimuli, in order to control for over-learning effects and reduced personal involvement in the activity. The latter represents one of the perils when using simple tasks: due to the reduced cognitive load of the task and limited personal relevance, subjects might employ superficial processing strategies and slowly disengage from the activity. For future studies we are interested in investigating the impact of differential comparison feedback upon performance and performance contingencies. Also, in order to detect other process aspects relating to the impact of different achievement goals, we intend to introduce a separate training phase, in order to get subjects accustomed with the mechanics of the task and then manipulate goal orientations.

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### 3.4 STUDY 2 - Impact of achievement goals, normative feedback, and task requirements on performance<sup>2</sup>

#### 3.4.1 *The role of normative feedback in analyzing achievement goals' impact on performance*

The impact of feedback upon performance has long been a subject of interest in research regarding determinants and contingencies which influence human motivation and performance (Bandura, 1996; Bandura & Simon, 1977; Locke & Bryan, 1966; Locke, 1967; Miller, 1965; Wright, 1996). As feedback offers valuable input on progress regarding task completion and evaluates the quality of individual actions (Kluger & DeNisi, 1996, 1998), its link with achievement goals represents a relevant matter. The importance of this relation is sustained by a host of studies that did not find a direct effect of feedback alone on performance and pointed out that outcome or process representations of what an individual strives for (his goals) are essential for the manner in which performance feedback is processed (Balcazar, Hopkins, & Suarez, 1986; Latham, Mitchell & Dossett, 1978; Warner & Mills, 1980).

We believe this mechanism involves a two-way influence between feedback and goals. On the one hand, the feedback individuals receive can validate, modify or invalidate the goals they set for themselves or the goals that are set by other entities (parents, teachers, schools, employers, etc.). For instance, highly negative comparison feedback (e.g. "you were the worst in the class") can annul a newly set mastery goal and transform it into a performance goal. On the other hand, high relevance goals can reduce the impact of negative feedback on performance or increase that of positive feedback, or simply facilitate the selection of relevant information from the feedback message, without attending to the negative valence (the experience of flow, see Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005).

In real-life settings goal contents and processes do influence how feedback is processed, but multiple performance contingencies (previous experience with a task, emotional state, perceived importance of a task, existing social support in approaching the task) also contribute to this impact, amounting to a cumulative effect. Therefore, it is very difficult in such situations to determine the mechanisms through which each variable influences performance.

Feedback always points out one's standing between a present level of performance and a desired/expected level of achievement, usually expressed through criterion standards of performance. Feedback can reflect a negative discrepancy (you did not reach the criterion standards), a positive standing (you surpassed the criterion standards) or informs individuals that they accomplished the requirements according to the criterion standards. A present level of performance can be variously defined through: (a) objective performance indicators – performance relevant process or outcome behaviors for which frequency, duration, or intensity can be recorded, thus indicating task progress; or (b) performance contingencies - perceived self-efficacy, outcome expectations,

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<sup>2</sup> This study was previously published in *Cognition, Brain, Behavior. An Interdisciplinary Journal* (Negru, 2009a).

task interest or perceived difficulty. The expected level of performance can refer to self-esteem or ego involvement contingencies (Harackiewicz & Elliot, 1993; Rawsthorne and Elliot, 2003; Sansone, Sachau, & Weir, 1989), but most frequently reflects normative expectations which are considered as having higher relevance for competence development (Elliot, 1999; Senko & Harackiewicz, 2002). The role of performance feedback has been analyzed both from a discrepancy reduction (Carver & Scheier, 1998; Powers, 1973) and a discrepancy creation perspective (Bandura & Locke, 2003). Both approaches agree that the goals individuals hold are an important tool in processing and evaluating feedback.

As previously mentioned, performance feedback can refer to very complex dimensions of evaluation. In the present study we focus on normative comparison feedback, which we define as contrasting an individual's performance (progress wise, during the task or overall standing, after task completion) against the performance of a normative group. This type of feedback makes use of social comparison mechanisms (Festinger, 1954; Suls & Wheeler, 2000, 2005) and we see it as having a major impact on choice, pursuit, maintenance, and action implementation of achievement goals. Individuals often use normative cues for self-evaluation, as from a social comparison perspective they encompass information with high diagnostic value for competence development and demonstration.

An important aspect we took into account in our research is derived from an observation Elliot and Moller (2003) made on the viability of using normative group comparisons in experimental research on achievement motivation: "in many instances, the "other" that one strives against is simply a large, anonymous group of persons (e.g., standardized norms) that functionally represent abstract numbers rather than concrete individuals" (p. 345). An interesting question derives from this observation: how do individuals process such feedback when the comparison criterion, the "other" is clearly specified? In most ecological contexts people receive normative feedback that compares their performance to that of specific colleagues, students, teammates. We believe that the construction of an experimental setting where the "competitor" is clearly defined, so that comparison feedback relates individual performance directly to his performance, offers more detailed process information on the impact of feedback on achievement.

### *How goals and feedback impact actual performance*

Though most theories agree that goals doubled by feedback have a higher impact on performance, the results of existing research rather focus on performance contingencies than on performance itself. Some studies point out that positive feedback, presented as progress or success in goal attainment, sustains high self-efficacy beliefs, supports self-set goals, and increases satisfaction (Jourden, 1991). Positive normative feedback is also associated with enhanced perceptions of competence and subsequent intrinsic motivation for the given task (Boggiano, Harackiewicz, Bessette, & Main, 1985; Harackiewicz, 1979).

Negative feedback, conceptualized as failure in achieving certain standards is linked with a decrease in self-set goals, reduced task enjoyment and increasing negative dysfunctional emotional responses (Locke, Cartledge, & Knerr, 1970; Prussia & Kinicki, 1996). On a different note, Kluger and DeNisi's (1996) review on the effect of feedback interventions found no evidence that information about failure (negative feedback interventions) and information about success (positive feedback interventions) would have an average differential effect on performance. We next attempt to identify process statements regarding the impact of feedback on objective performance indicators.

The proponents of goal-setting theory, Locke and Latham (1990), postulate that "with respect to feedback, goals are a *mediator*; they are one of the key mechanisms by which feedback gets translated into action [...]. With respect to goals, feedback is a *moderator*; goals regulate performance far more reliable when feedback is present than when it is absent" (p. 173). Nevertheless, the same authors acknowledge that not all types of feedback have a positive impact on performance (Locke & Latham, 1990, 2002), and a process aspect to be considered refers to whether individuals are allowed to reconsider the value of current goals and set new ones after they receive feedback. Goal-feedback interactions appear to be more beneficial for performance when individuals control goal change, but that would imply the existence of a reflection period, similar to a deliberative mindset proposed by Gollwitzer (1996), which would follow an initial implementation mindset, where a certain goal has proved to be ineffective from a feedback perspective. Such ideal conditions, where a renewed return to a deliberative mindset is possible are, we believe, rather scarce.

Achievement goal literature acknowledges the role of competence feedback on increasing or decreasing the impact of mastery versus performance goals on results, task persistence, task enjoyment and interest (Rawsthorne & Elliot, 1999; Ryan, Koestner, & Deci, 1991). Dweck and Leggett (1988) postulate that performance goals make individuals more vulnerable to failure feedback, while mastery goals are linked to higher persistence and task involvement for the same type of feedback. When debating the dynamics of instructional conditions, some school-based studies point out that progress feedback associated with a mastery goal leads to "the highest self-efficacy, motivated strategy use, and achievement" (Schunk & Ertmer, 2000, p. 641). There are very few research studies which investigate the impact of differential feedback on specific achievement goals, a notable exception being the research of Senko and Harackiewicz (2005b), of particular interest being their second study.

Some authors consider that perceived progress toward goal attainment is of greater importance for performance than holding a mastery or performance goal (Locke & Latham, 2002). Zimmerman and Schunk (2004) debate this standing, arguing that at times progress towards goal achievement can be difficult to ascertain, due to ambiguous or subtle standards of task progress. In such situations a focus on process goals sustained by feedback rather than product goals seems to be more beneficial for performance in learning a new strategy (Schunk & Schwartz, 1993).

3

There is some inconsistency of feedback effects on goals and performance and a lack of strong theoretical assumptions on the hierarchy and mechanisms of their interaction. Little is actually known of how feedback affects performance and how achievement goals influence its processing (Kluger & DeNisi, 1996; Senko & Harackiewicz, 2005b). Specific contingencies of normative feedback in interaction with achievement goals have not been closely investigated yet, and their joint effect on performance has not been systematically approached. The feedback individuals receive can influence their performance through impact on their achievement goals or without changes at goal level. For instance, when a student holding a mastery goal receives negative feedback regarding his results compared to his colleagues (normative feedback), he can keep on pursuing that task with the same mastery goal, with feedback directly influencing his actions (e. g. he changes strategies), but not impacting his goal. Hence, feedback affects performance through changes in achievement goals, but it can also have a direct effect, without goal mediation.

### ***3.4.2 Research objectives and hypotheses***

Competence contexts with competition framing usually integrate feedback that compares one's performance with the performances of others. When a student learns a new task in school, comparisons with colleagues are inevitable. In the present study we aimed at investigating how feedback comparing a participant's performance to a competitor's performance ("better than you" or "worse than you") influences the impact of different achievement goal orientations on performance.

Firstly, we were interested in analyzing how normative feedback valence (positive versus negative) and achievement orientation (mastery versus performance) influence task performance, appraised in terms of response rapidness and response accuracy. We hypothesized that specific goal orientations have a differential impact on task performance. Mastery goals focus the individual on the task, framing performance expectations in terms of ability development. Few studies have analyzed the performance dynamics of mastery goals in competition contexts, but theoretical approaches sustain that such goals can short-circuit normative feedback, regardless of its valence. Hence, we expected that mastery goal participants have similar performances, regardless of the type of feedback provided. Performance goals, on the other hand, focus the individual on self-other comparisons, with positive feedback being more beneficial for performance outcomes than negative feedback, which is supposed to be detrimental to task results. We expected that for performance goals the valence of feedback leads to different patterns of task outcomes, positive feedback being linked with higher performance levels than negative feedback.

Secondly, we wanted to test how goal orientation and comparison feedback jointly influence performance levels, for the two task performance dimensions we recorded: response rapidness and response accuracy. As previously discussed, theoretical tenets support the existence of an interaction effect between feedback

and goal orientation on performance, without making specifications for different performance dimensions. Hence, our study comes to detail how such an effect manifests itself for each performance dimension.

Thirdly, as an exploratory pursuit, we examined the patterns of performance that activity execution based only on task requirements is associated with (no achievement goal is pre-assigned and no comparison feedback is given). We explored this aspect for both response accuracy and rapidness, compared to assigned achievement goal and feedback conditions. This pursuit will offer valuable information of the effects of purpose goals (in our study represented by achievement goals) versus task-specific or target goals on task performance.

Research objectives and hypotheses are succinctly presented below.

*Objective 1. Analysis of the manner in which normative feedback valence (positive versus negative) and achievement orientation (mastery versus performance) influence task performance in a competition-framed activity.*

H 1.1. Valence of normative feedback determines different patterns of task performance when performance goals are assigned compared to when mastery goals are given or no achievement orientation is presented.

H 1.2. Normative feedback and achievement goal orientation have a joint effect on task performance in a competition-framed activity, with differential influences on different task performance dimensions (response rapidness and response accuracy).

*Objective 2. Exploratory investigation of task performance patterns based only on task requirements, compared to normative feedback and achievement goal induction.*

H 2.1. Execution of a novel activity based only on task requirements leads to different patterns of task performance compared to execution of the same activity through the joint guidance of achievement goals and normative feedback.

*Objective 3. Examination of differential speed-accuracy tradeoffs for the different achievement goals and valence of normative feedback.*

H 3.1. Performance goals lead to the most efficient speed-accuracy tradeoffs, as reflected in the competition index.

*Objective 4. Investigation of self-assessed performance contingencies for mastery goals compared to performance goals and task requirements-driven goal.*

H 4.1. Regardless of the normative feedback valence, mastery goals are linked to more task enjoyment and involvement, reduced perceived task difficulty compared to competition goals, and task requirements-driven goals.

H 4.2. Mastery goals determine the highest levels of intentionality and commitment to repeat the activity (time projection and frequency), compared to competition goals and task requirements-driven goals.

### 3.4.3 Methods

#### *Participants*

The sample consisted of 156 high-school students, ranging in age from 16 to 19 years, with a mean age of 17.2 years. They were 10<sup>th</sup> to 12<sup>th</sup> grade students from theoretical high-schools in Cluj-Napoca, Romania. Of the participants 45 were male and 111 female. Students were recruited in their school and took part in the study on a voluntary basis.

#### *Design and procedure*

We used a 2X2 factorial experimental design with the independent variables: type of goal orientation (mastery orientation versus performance/competitor orientation) and comparison performance feedback (“better than you” versus “worse than you”). The number of subjects in each experimental condition is presented in the table below:

**Table 3.2 Latin square of experimental conditions**

Feedback	Better than you	Worse than you
Goal orientation		
Mastery orientation	<b>G1</b> n=31	<b>G2</b> n=31
Performance orientation	<b>G3</b> n=30	<b>G4</b> n=32

In order compare the experimental conditions to a base-line task requirement condition, we introduced in our study a group where no goal orientation or comparison feedback was given. We wanted to analyze whether and how performance changes in a group where individuals are only presented with the task demands, compared to the experimental groups where the task is complexly framed in terms of achievement orientations and normative feedback. In the base-line task requirements group (**G5**) we had 32 subjects (n=32).

Participants were randomly assigned to one of the five conditions, being informed that they were going to perform an activity as part of a study on student learning. The experimental procedure was conducted in the high-schools' computer laboratories, in groups of maximum 6 participants, with spacing of at least 1.30 meters between participants.



### Organization of the activity and instructions

The experimental procedure comprised 2 phases; a process depiction of the experimental procedure is presented in Figure 3.13. The First Phase was a *Training Phase*, where no manipulation was present and on screen appeared only the participant's set of lines. In the second phase, which we called the *Intervention Phase*, we introduced on the lower half of the screen the performance of the "competitor", manipulating participants' goal orientation and the comparison performance feedback they received.

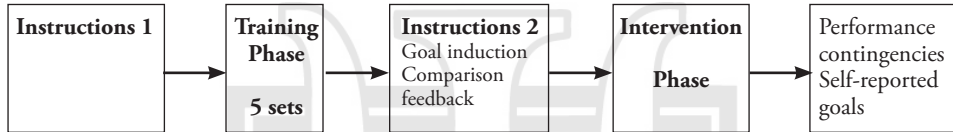
The screen was horizontally divided in two and the participant performed his task in the upper part; the lower part was empty in the Training Phase, while in the Intervention Phase it contained the competitor's task. In the Training Phase we presented 5 sets of lines, while in the Second Phase there were 20 sets of parallel lines. The minimum number of lines in a set was 9 and the maximum 11; there never were 10 lines in a set. For the Training Phase, exposure time of a set was between 800-900 ms; in the Intervention Phase we reduced it at values between 700-800 ms, in order to control for habituation and over-learning effects.

For this experiment we introduced a standard time of three seconds a subject had to wait until the next set of lines was presented. After a set of lines disappeared from the screen (800-900 ms), the following message appeared in red in the upper left corner of the subject's quadrant: "Push one of the keys to answer". After the subject answered, the message "Your response has been recorded" appeared in red in the upper right corner. We introduced the latter element in order to control for very quick responses of the participants that would interfere in the *Intervention Phase* with them visualizing the comparison feedback. In this manner, subjects were informed that their answer was recorded, but could not advance to the next set until the three seconds waiting time elapsed.

In the *Training Phase*, we explained to participants the mechanics of the task, describing the elements they were going to visualize on screen and the requirements of the task itself: push key A if they considered that there were more than 10 lines on the screen or key L if they thought there were less than 10 lines in a set. We aimed at getting participants accustomed to the elements and functionality of the task, in order to control in Phase 2 for high variability between subjects in response times, due to problems in understanding the requirements of the activity.

After the first phase ended, we informed participants that in the second phase the task was exactly the same, but this time, in the lower quadrant they would see what another student that performed this activity did. We explained that this other student was generally called "the competitor" and that they would visualize the task he performed, which was played out at the same time as the participant completed the task. Participants in the no-preset goal group were also presented with another student completing a similar task in the lower part of the screen, but this student was not labeled "competitor" and there were no normative feedback messages.

In the *Intervention Phase*, after the participant's set of lines disappeared, in 50% of cases the comparison feedback message "Better than you" or "Worse than you" appeared in red in the competitor's quadrant. This message remained on screen for 3 seconds and participants could not advance to the next set until this period of time elapsed. For all feedback groups we predefined the same sets where a feedback message appeared. The procedure followed the process depicted below:



**Figure 3.13** Process depiction of the experimental procedure

### *Goal induction*

The induction of a specific goal orientation was similarly organized for all experimental groups. After the training phase ended, we introduced the goal orientation and the type of competence feedback. For goal orientation, we presented the activity as being related to "outperforming the competitor" (performance/competition orientation) versus "doing the activity better than in the first phase" (mastery orientation). We then asked participants to list three reasons why a competition orientation (for the performance orientation) or an ability development orientation (for the mastery orientation) is important in their everyday activities. Subsequently, the experimenter reinforced the goal orientations: "in this activity it is important that you focus on doing better than the competitor", or "in this activity it is important that you focus on learning how to do the task better". Participants were asked to fill in some personal information on the computer screen (subject ID, date of birth, gender). Then the experimenter repeated: "Remember, the most important thing in this activity is to..." followed by the specific goal. The goal orientation was repeated three times during this induction period. Participants were then instructed to push the Start button on the computer screen in order to commence the experimental phase of the activity. They were informed that when this phase was over they should stop and await further instructions.

The no pre-set goal, no-comparison feedback group was presented only with the description of the task.

### *Comparison feedback*

When we introduced the "competitor", we presented the comparison feedback as an evaluation of the participant's performance for each set compared

to the competitor's performance. We differentially detailed a *positive comparison feedback*: "Whenever the competitor has lower performances compared to your performance for each set, the message "worse than you" appears in red in the competitor's quadrant." For the *negative comparison feedback* the instructions were similar, but each time the competitor had better performances than the participant the message "better than you" was displayed. As we discussed before, the feedback was a preprogrammed message, generated to appear in 50% of the sets, following the same pattern for all experimental conditions.

### *Instruments/Measures*

*Response rapidness.* Response rapidness was recorded in seconds and milliseconds (e.g. 1.45 = 1 second and 45 milliseconds), as the interval between the moment the set appeared on screen and the moment when the participant pushed one of the designated keys (A or L).

*Response accuracy.* A participant's response was coded as accurate when it was a correct approximation of the number of lines in a set (more than 10 or fewer than 10).

*Performance Contingency Scale (PCS).* The PCS was used to analyze post-hoc several relevant performance contingencies. The items were identical to those used in Study 1. In order to investigate patterns of self-reported goals in the activity, we introduced for this study two open-ended items, one for each phase of the activity. Subjects were asked to list: "What was the most important aspect you focused on, while pursuing this phase".

### **3.4.4 Results for intervention phase**

We analyzed the data using SPSS 17 for Windows. An alpha level of .05 was used for all statistical tests, if otherwise not specified; all computed values of eta squared ( $\eta^2$ ) are partial.

#### **3.4.4.1 Results for performance indicators**

##### *Descriptive data*

For *response rapidness* (see Fig. 3.14), a mastery goal with positive comparison feedback ( $M = 2.83$ ,  $SD = 1.39$ ) was associated with the slowest response rates of all five groups, followed by mastery goals with negative comparison feedback ( $M = 2.20$ ,  $SD = 1.21$ ). No significant differences were depicted between the two mastery groups,  $t(60) = -1.88$ ,  $p > .05$ , hence indicating that for the rapidness dimension the type of comparison feedback does not have a relevant differential impact on mastery goals. Performance goals for both positive comparison ( $M = 1.79$ ,  $SD = 0.42$ ) and negative comparison feedback ( $M = 1.72$ ,  $SD = 0.58$ ) had the most rapid response times. Assigned performance goals appeared to focus

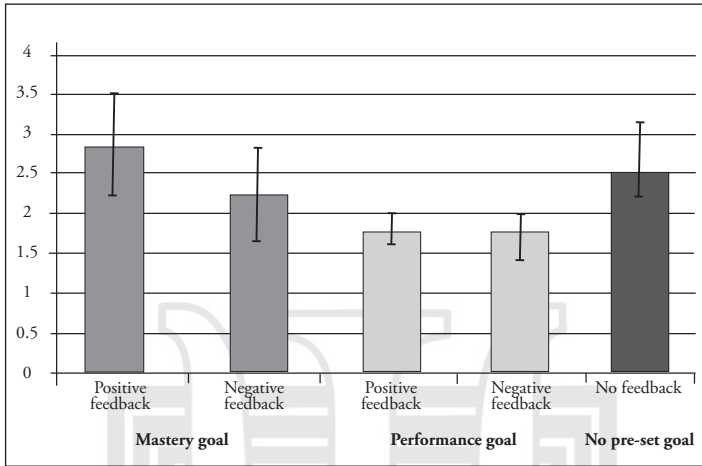
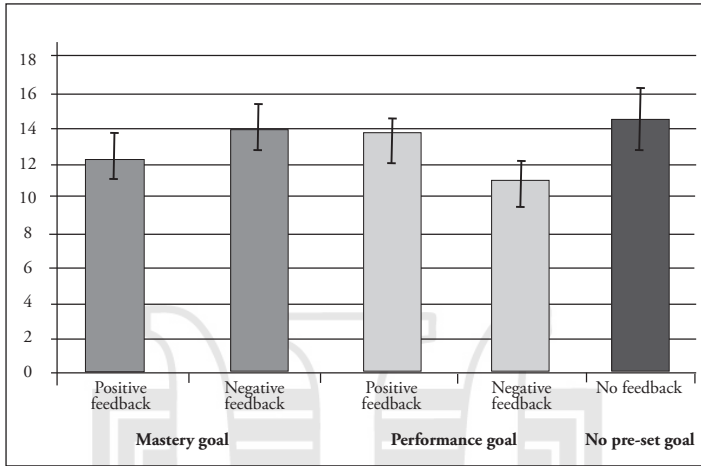


Figure 3.14 Mean response rapidness for experimental groups

individuals on being quick, while mastery goals or no goal instructions did not center participants on answering the task with as much speed.

Similar to results from Study 1, performance goals appeared to focus individuals on being quick, while assigning mastery goals or giving no goal instructions did not center participants on answering the task with as much speed.

Response accuracy (see Fig. 3.14) had the lowest values in the performance orientation with negative comparison feedback ( $M = 11.16, SD = 2.56$ ), surprisingly followed by mastery goals with positive comparison feedback ( $M = 12.35, SD = 2.57$ ). The mastery goal orientation with negative comparison feedback ( $M = 14.16, SD = 2.14$ ) and the no pre-set goal/no feedback condition ( $M = 14.66, SD = 3.72$ ) were associated with the most accurate responses. Independent sample t-tests indicated that the observed differential pattern in response accuracy in negative versus positive feedback for mastery goal groups was statistically significant,  $t(60) = 3.00, p < .005$ . Participants who were assigned a mastery goal and received positive feedback tended to respond less accurate compared to their mastery counterparts who were given negative feedback. This refines our initial hypothesis regarding the direction of task performance changes when different normative feedback and achievement goals are assigned. Mastery goals do not influence task performance in a uniform manner, regardless of the type of feedback participants receive. Our results rather indicate that this is true for the response rapidness, but for accuracy individuals have different patterns of performance for different types of feedback. Also, as can be seen in Fig. 3.15, for response accuracy participants in the mastery/negative feedback group had very close values to those in the performance/positive feedback and pre-set goal/no feedback group.



**Figure 3.15** Response accuracy for experimental groups

These results are also similar to those from Study 1, indicating once again that for this type of novel task, higher levels of response accuracy are achieved when no external goal framing or comparison feedback is given to participants. When we gave no feedback regarding the participant's performance compared to that of the competitor, subjects appeared to focus more closely on their own task, with increased accuracy in responses.

#### *Analysis of variance for goal orientation and competitor evaluation*

In order to analyze the interaction effect between goal orientation and comparison feedback and their separate main effects, we computed Factorial Analyses of Variance, with response accuracy and respectively response rapidness as dependent variable, and goal orientation and comparison feedback as independent variables.

We found a significant interaction *between goal orientation and comparison feedback for response accuracy*,  $F(1, 151) = 16.43$ ,  $p = .000$ ,  $\eta^2 = .098$ . For *response rapidness* we did not find a significant interaction effect,  $F(1, 151) = 2.53$ ,  $p = .113$ ,  $\eta^2 = .017$ . These results partially confirm our hypothesis that goal orientation and comparison feedback jointly influence performance levels. The level of response accuracy is reflected in the interaction between goal orientation and comparison feedback, while no such pattern was depicted for response rapidness.

There was a significant main effect of *goal orientation for response rapidness*,  $F(1, 151) = 18.97$ ,  $p = .000$ ,  $\eta^2 = .112$ . Scheffe tests pointed out that participants with a performance goal ( $M = 1.75$ ) gave significantly more rapid responses compared to participants with a mastery goal ( $M = 2.52$ ),  $p = .000$ . We found no significant main effect for *response accuracy*,  $F(1, 151) = 3.47$ ,  $p = .064$ ,  $\eta^2 = .022$ , though the  $p$  value indicated a relevant tendency for the impact

of goal orientation on this dependent variable. Scheffe tests also revealed that performance goals ( $M = 12.27$ ) were associated with significantly reduced rates of accurate answers compared to no preset goal group ( $M = 14.66$ ),  $p = .001$ . The no-preset goal condition was linked with the highest level of accurate responses. This suggests that when task requirements are clearly operationalized, an activity purpose orientation (achievement goals) can be detrimental in attaining high levels of performance on this dimension.

For *comparison feedback* there was a significant main effect for *response rapidness*,  $F(1, 151) = 3.93$ ,  $p = .049$ ,  $\eta^2 = .025$ . Scheffe tests did not reveal any significant differences between groups. No significant main effect was found for *response accuracy*,  $F(1, 151) = .24$ ,  $p = .620$ ,  $\eta^2 = .002$ . This indicates that there were no overall differences in how correct participants responded depending on comparison feedback. Post-hoc Scheffe also pointed out significant differences between no feedback ( $M = 14.66$ ) and negative comparison feedback ( $M = 12.63$ ), at  $p = .005$ ; when no feedback was given, participants tended to give more correct responses. Positive comparison feedback ( $M = 12.90$ ) was also associated with less correct answers compared to no comparison feedback ( $M = 14.66$ ,  $p = .019$ ). So, it appears that the lack of any feedback comparing the participant's performance to the competitor performance was more beneficial for increased response accuracy. These findings provide valuable information on how task requirements guide performance in a highly structured activity.

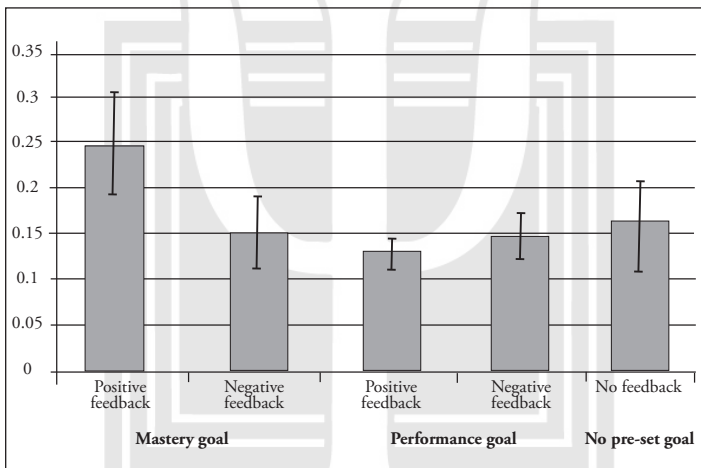
#### *Analysis of the speed-accuracy tradeoff: the competition performance index*

Similarly to the procedure employed in Experiment 1, in order to analyze the tradeoff between speed (response rapidness) and accuracy (response accuracy) when different goal orientations and normative feedback are given in a competition framed activity, we computed a *competition index* which reflects performance efficiency in the given task. The competition index was computed as the rapport: mean response rapidness / mean response accuracy. *Low values* of this competition index indicate more *efficient speed-accuracy tradeoffs*, while *high values* indicate *less efficient speed-accuracy tradeoffs*.

Analysis of the correlation patterns between response accuracy and response rapidness at the Intervention phase of the activity revealed negative correlations between rapidness and accuracy at Phase 1 and a positive correlation at Phase 2. Though the correlations were not statistically significant, neither for Phase 1 ( $r = -.08$ , *ns*), nor for Phase 2 ( $r = .06$ , *ns*), they bring into attention an interesting aspect. It appears that the direction of the relations between the two indicators changes from one phase to the other, in that at Phase 1 slower responses are rather associated with inaccurate responses and viceversa, while at Phase 2 slower responses were rather related to more accurate responses.

As depicted in Figure 3.16, similarly to Experiment 1, in the *Intervention Phase* of the activity the performance goal condition led to the most efficient levels of speed-accuracy tradeoff ( $M = .14$ ), compared to the mastery goal ( $M = .20$ ),

and baseline condition ( $M = .16$ ). Again, the pursuit of a competition goal in a competition framed activity offers the best balance between response rapidness and response accuracy, indicating more accurate responses in a response time frame. An intriguing finding, which we did not expect and is not documented in existing literature on the effect of feedback upon performance in different achievement goals conditions, relies in the more efficient speed-accuracy tradeoffs when negative feedback was given, in the mastery goal condition. Reduced values of the competition index when negative feedback was given to performance goal participants, could point out that this type of feedback may be associated with an increased focus on the task.



**Figure 3.16** Competition index for experimental groups at Phase 2

In order to verify how performance efficiency is differentially influenced by variations in these factors we computed a factorial ANOVA, with competition index at Intervention Phase as dependent variable and goal orientation and normative feedback as independent variables. The results point out that goal orientation and normative feedback interact in determining different competition index levels,  $F(1, 151) = 11.34$ ,  $p = .001$ ,  $\eta^2 = .07$ . This is an important finding from both an achievement goal theoretical perspective and an applied intervention standpoint. Firstly, it indicates that achievement goals are modulated by normative feedback valence when speed-accuracy tradeoffs in task performance are assessed. Secondly, in applied settings, when we aim at increasing performance levels in specific tasks, we must carefully chart how adaptive achievement goals for competition framed tasks can be best supported by normative feedback, in order to determine adequate speed-accuracy tradeoffs. The most adaptive type of tradeoff refers to correctly solving high numbers of task requirements in a reduced time frame, hence having low comparison indices.

Results for main effect of goal orientation replicated our findings from Experiment 1, pointing out a significant influence on speed-accuracy tradeoffs,  $F(1, 151) = 11.08, p = .001, \eta^2 = .06$ . Post-hoc Tukey tests showed that performance goals ( $M = .14$ ) determined significantly more efficient speed-accuracy tradeoffs than mastery goals ( $M = .20, p = .003$ ), a relation that again replicated our findings from Study 1. For normative feedback, we also depicted a significant main effect,  $F(1, 151) = 4.51, p = .035, \eta^2 = .02$ , with Tukey tests pointing out a tendency of negative feedback ( $M = .15$ ) to determine more efficient speed-accuracy tradeoffs than positive normative feedback ( $M = .19, p = .07$ ). This is an interesting finding that brings into focus a tempting assumption: in competition-framed novel activities, negative normative feedback facilitates better speed-accuracy tradeoffs in task completion. This could be due to construction of more adequate strategies in approaching the task through balance and integration of the two performance indicators (rapidness and accuracy). Also, the negative information provided through feedback could guide more adequate management of attentional resources in a competition salient activity.

#### ***3.4.4.2 Results for performance contingencies***

For analysis of internal consistency of the scale we computed Cronbach's Alpha, which indicated an acceptable overall value of .75 ( $N=145$ ), of a similar value to that obtained in Study 1.

##### *Descriptive analyses of performance contingencies*

We conducted descriptive analyses for the five conditions, taking into account self-assessment for the training phase (T) and for the intervention phase (I). Though no manipulation took place in the training phase we were interested how performance contingencies changed from the learning phase to the intervention phase and which dimensions were more sensitive to self-assessment differences.

*Perceived task difficulty.* For the training phase participants from all experimental conditions assigned similar difficulty evaluations, with a mean range between 2.37 and 2.71. For the intervention phase the highest level of perceived difficulty was reported by subjects who had been assigned a mastery goals with negative feedback ( $M = 2.84, SD = 1.27$ ). A performance goal with positive feedback was associated with the lowest level of task difficulty ( $M = 2.30, SD = 1.09$ ). The steepest increase on perceived task difficulty from the training phase ( $M = 2.71, SD = 1.00$ ) to the intervention phase ( $M = 3.30, SD = 1.08$ ) was also identified for mastery goal participants who received negative feedback. For participants who had been given a performance goal it was the negative feedback as well that determined an slight increase in perceived difficulty from the training phase ( $M = 2.59, SD = 1.13$ ) to the intervention phase ( $M = 2.84, SD = 1.27$ ).

*Task enjoyment.* In the training phase, reported task enjoyment had mean values between 3.13 and 3.87 in the five experimental conditions. Except for

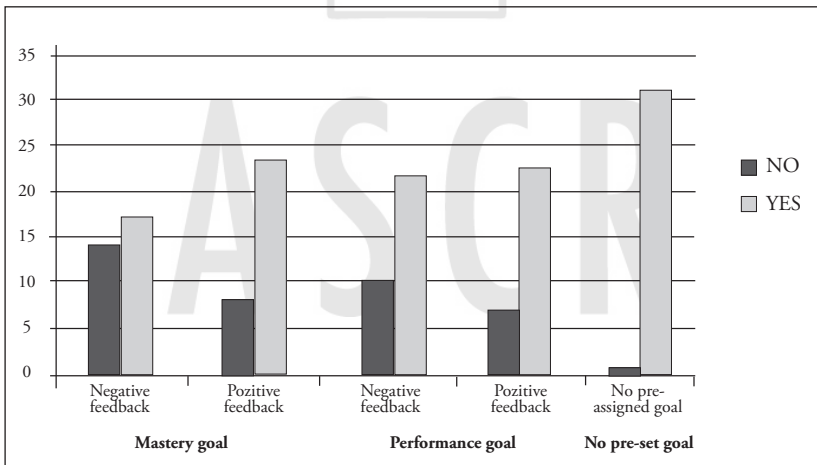


the no pre-set goal, no feedback group, in all other conditions involvement slightly increased in the intervention phase. A higher increase could be noticed in the positive feedback conditions when participants had been assigned either a mastery goal ( $M = 3.58, SD = 1.20$ ) or a performance goal ( $M = 3.79, SD = 1.10$ ). For the no pre-set goal, no feedback condition a small decrease in reported enjoyment from the training phase to the intervention phase, but still these participants reported the highest levels of task enjoyment. For the type of activity we designed, these results point out that no-preset goal is associated with more reported enjoyment and involvement.

*Task involvement.* For *task involvement*, we had an identical pattern of self-assessments for the training and intervention phase when participants were assigned a mastery goal with positive and respectively negative feedback, with differences at the level of standard deviations. The lowest level of reported involvement for both phases was also found for the two mastery conditions, while the highest level was for the no pre-set goal, no feedback group (for intervention phase  $M = 4.37, SD = 0.66$ ). Participants who had been given a performance goal, while receiving positive feedback also reported high reported involvement in the intervention phase ( $M = 4.36, SD = 0.67$ ). We can see a slight increase in reported task involvement for all conditions.

*Intentionality and further commitment for task repetition*

From the total of 156 subjects that filled out the PCS, 25.64% ( $n = 40$ ) had no intention to repeat the activity again, while 74.36% ( $n = 116$ ) expressed the intention to pursue the activity again.



**Figure 3.17** Intention to repeat the activity for experimental groups

The frequency of expressed intention to repeat the activity for experimental groups is presented in Figure 3.17. When verifying whether differences among experimental conditions are significant in expressing intent to repeat the activity, we conducted a Pearson Chi-Square test ( $\chi^2$ ), which yielded significant,  $\chi^2(4, 156) = 15.31, p < .005$ .

For the time-projection to further repeat the activity we found no significant differences among experimental conditions,  $\chi^2(8, 116) = 10.55, ns$ . The same was the case for frequency of task repetition,  $\chi^2(6, 116) = 5.53, ns$ .

Frequency and time projections of future involvement in activity were positively correlated ( $r = .57, p < .01$ ), indicating that the more times subjects wanted to repeat the activity, the closer to the present moment this commitment was. We mention again that time projections answers were reversed coded (now = 3, this week = 2, sometime in the future = 1). This sustains the existence of a coherent commitment trend for the intention of repeating the task, with participants being the more open to do the task again.

### *Impact of achievement goals and comparison feedback on performance contingencies*

In order to analyze whether self-reported performance contingencies differ as a function of goal orientation and comparison feedback, we computed factorial Analyses of Variance, with perceived task difficulty, task enjoyment and task involvement successively as dependent variable and goal orientation and type of comparison feedback as independent variables.

**Perceived task difficulty.** For task difficulty, there was a significant main effect for comparison feedback,  $F(1, 148) = 11.69, p = .001, \eta^2 = .073$ . According to Scheffe tests, participants who had received negative comparison feedback ( $M = 3.06$ ) evaluated the task as being significantly more difficult than those who received positive comparison feedback ( $M = 2.41$ ),  $p = .004$ . It seems that the valence of feedback subjects receive is relevant for how difficult they consider the task, a finding in line with results of current research on performance feedback in school learning. We found no significant main effect for goal orientation and no interaction effect.

**Task enjoyment.** For task enjoyment, we found a significant main effect for comparison feedback,  $F(1, 148) = 4.54, p = .035, \eta^2 = .030$ . Scheffe tests could not reveal any significant differences between groups. Comparison feedback seems to influence task enjoyment, but no clear differences could be identified. We found no significant main effect for goal orientation and no interaction effect.

**Task involvement.** We found a significant main effect for goal orientation,  $F(1, 148) = 7.99, p = .005$ , the  $\eta^2$  of .051 indicating a small effect size. According to Scheffe tests, participants with a performance goal reported to have been significantly more involved in executing the activity ( $M = 4.15$ ) than those who held a mastery goal ( $M = 3.71$ ),  $p = .025$ . Also, participants who had no pre-set goal to approach the task reported significantly more task involvement ( $M = 4.38$ ) than those with a mastery goal ( $M = 3.71$ ),  $p = .004$ . It thus seems that for

an activity format where a competition framing is highly activated people tend to perceive more involvement when they focus on the competition or construct idiosyncratic, personal goals, than when they are guided to set and follow mastery goals. This is an interesting aspect that we will further discuss in the next segment.

No significant main effect was found for comparison feedback,  $F(1, 148) = 1.65, p = .201, \eta^2 = .011$ . Still, post-hoc Scheffe revealed that individuals who received negative feedback ( $M = 3.84$ ) reported significantly less task involvement than those who did not received any comparison feedback ( $M = 4.38$ ), at  $p = .025$ . It appears that lack of comparison feedback increases self-reported task involvement.

*Analysis of self-reported goals*

As we previously mentioned, after activity completion, we asked participants to list the main aspects they focused on while pursuing the task, from a goal perspective. Through this we aimed at tapping into idiosyncratic intentional representations of the task, investigating how participants processed and reportedly used the assigned achievement goals or how they constructed self-relevant goals when no achievement goal was pre-set.

A total of 122 goals were generated for each phase of the activity. For the Training Phase all participants reported procedural goals, closely related to the requirements of the task, to different degrees of specificity. In the Intervention Phase, the goals participants reported were closely related to the experimental manipulations. In Table 3.3 we present samples of self-generated goals, organized on the experimental conditions to which each participant had been exposed. We next analyzed how many of the goals participants include as a reference point for performance the competitor. We coded as competitor instances where it was referred to as: “the adversary” (3 situations), “the results of the computer” (3), “competition” (1), “opponent” (3), “the performance of the other” (1).

**Table 3.3 Samples of self-generated goals for the Intervention Phase, for experimental groups**

<b>Group</b>	<b>Samples of self-generated goals</b>
Mastery goal, negative feedback	<ul style="list-style-type: none"> <li>• To get a better result than the last time I focused on doing better than the competitor.</li> <li>• Achievement in the contest.</li> <li>• Improving my (response) time, and therefore the results.</li> <li>• To defeat the competitor.</li> </ul>
Mastery goal, positive feedback	<ul style="list-style-type: none"> <li>• I waited for the computer to tell me that my competitor was weaker.</li> <li>• To watch what the competitor was doing.</li> <li>• I focused on giving as many correct answers as possible.</li> <li>• To pay attention at everything appearing on the screen.</li> <li>• To try and perform as well as possible, according to the instructions.</li> </ul>

Group	Samples of self-generated goals
Performance goal, negative feedback	<ul style="list-style-type: none"> <li>• My answer to be better than the competitor's.</li> <li>• The continuous and simultaneous observation of the other's performance and the completion of the similar task.</li> <li>• To be better than the other and to answer correctly.</li> <li>• The desire to win. To be the best during the activity.</li> </ul>
Performance goal, positive feedback	<ul style="list-style-type: none"> <li>• Confirmation that that competitor was weaker.</li> <li>• I tried to answer correctly in order to beat the competitor.</li> <li>• I was paying attention to the lines on the screen, but also to what the competitor was doing.</li> <li>• To observe the lines and answer faster than the competitor.</li> <li>• The result of the competitor.</li> </ul>
No pre-set goal, no feedback	<ul style="list-style-type: none"> <li>• The promptness of my action/answer.</li> <li>• To focus even more on my „picture“, ignoring the computer's „picture“ that looked completely different from mine.</li> <li>• To press the right key fast (in a short time).</li> <li>• To approximate the number of lines shown.</li> <li>• I focused on what was of interest for me, the upper part of the screen, without being influenced by the lower half - the competitor.</li> </ul>

For the performance goal conditions participants' comparison with the competitor appeared in 32 of the listed goals (from a total of 56 goals), which indicated that the assigned goal was indeed actively used in completing the task. The interesting aspect resided in the fact that mastery goal participants also reported in 24 goals (from a total of 63 goals) that they paid attention to what the competitor was doing. We identified two main tendencies of approaching the comparison feedback for participants in both mastery and comparison groups: active processing of feedback valence (focus on whether the competitor is better or worse than him) or dismissal (ignore the competitor) of the feedback message. This strategy approach can be further investigated in the implementation intention paradigm, where a key aspect refers to ignoring versus processing/attending to distracters. Research in this paradigm tends to indicate that a focus on ignoring the distracters is more effective for task performance compared to attending to distracters (Brandstätter, Lengfelder, & Gollwitzer, 2001; Gollwitzer & Brandstätter, 1997; Gollwitzer & Schaal, 1998).

Analysis of the reported goals in the mastery condition leads us to propose that in a highly activated competition context people cannot hold an assigned mastery goal and rather opt for switching or simultaneously activating a performance goal, which is more adaptive. We believe that this is an important experimental finding for the dynamics of achievement goals, and future experimental studies should focus on this aspect, as it nuances the debate mastery – performance orientation in approaching an activity.

### 3.4.5 Discussion

#### *The impact of normative feedback and achievement goals upon performance*

In light of the experimental results we analyze two possible explanations for the data patterns: an achievement goal switch hypothesis and a double goal hypothesis.

Senko and Harackiewicz (2005) consider that *goal switching* is one of the mechanisms individuals employ in regulating goals when normative feedback is given, conceptualizing it as a change in the activated achievement goal, due to information on performance standing provided during an activity. People can start a task being assigned a mastery goal, but feedback comparing their results to those of others may determine them to switch to a performance goal, which is more adaptive and easier to pursue in this situation (Elliot & Church, 1997).

Pintrich, Conley, and Kempler (2003) point out that early performance feedback can influence competence perceptions, which in turn can impact on the intensity of achievement goal pursuit. Competition focused goals seem to be more “vulnerable” to changes in performance expectations due to negative feedback, compared to mastery goals (Dweck & Elliot, 1983). In our study we did find a difference in response accuracy for performance / competition goals with positive versus negative comparison feedback, a result which is supported by previous research (Rawsthorne & Elliot, 1999). We revealed a more poignant difference in mastery goals, where negative feedback was associated with higher response accuracy than positive feedback. It can be that the comparison feedback “taints” and distorts both types of achievement goals, leading subjects to switch to an intentional orientation which is assessed as more adaptive.

Participants who received no comparison feedback displayed more accurate responses than those who received either positive or negative feedback. This finding suggests a negative impact of any type of comparison feedback on performance accuracy, when a task is simultaneously performed by participant and the competitor. We must note that to our knowledge no other studies have been conducted on verbal comparison feedback in an experimental context where the performance of a competitor is available in real-time to the subject.

We did not find a significant global main effect for positive versus negative normative feedback at the level of response accuracy, but more detailed analyses revealed a series of interesting aspects. When individuals were given a mastery goal and positive feedback they had less accurate and slower responses than those in the same goal condition that were given negative feedback. It appears that in this type of competition framed context mastery goals facilitate the accuracy dimension of performance when people are negatively evaluated. A possible explanation can be that negative feedback activated in participants an additional performance goal, therefore making them act on *two simultaneously activated goals*. This is just a supposition, only partially sustained by the self-reported goals at the end of the experimental procedure, which revealed that mastery goal participants also listed to have focused on the competitor’s performance

standing. Our data would rather support this double goal hypothesis than the goal switch hypothesis because when examining the impact of negative feedback for mastery versus performance goals, mastery goals are related to higher levels of response accuracy. In fact, the level of accuracy associated to mastery goals when we gave negative feedback was very close to that of the baseline group, where no such feedback was provided.

### *Achievement goals and task-specific goals*

Whenever an individual takes up a task, he often defines or receives an achievement goal, with orientation on the performance or mastery dimension. But each task has specific structural and functional dimensions, referring to what exactly the person has to do, how he is supposed to do it or when the best time for doing it is. All these task dimensions are best attended to when the individual sets procedural task goals, specifying process or outcome aspects that lead to its adequate completion, at a desired or imposed level of performance. Hence, we believe that achievement goals frame competence and lead to differential allocation of personal resources for goal implementation, but they are always backed up by specific task structure or functionality goals, which *procedurally* lead to the translation of a goal into action. Many times it is the context that guides our actions, through clear, operational task specifications, which leave little room for personal achievement goals. This aspect has not yet been thoroughly integrated in the achievement goal literature. Our findings regarding the advantage of no-preset goal/no feedback group for response accuracy compared to the assigned achievement goal conditions indicate that in a highly structured task where structural requirements are clear, these very requirements better facilitate this performance dimension.

### *Post-hoc self-assessment of performance contingencies*

Compared to performance contingency data from Study 1, individuals who were assigned a mastery goal did not display such strong enjoyment and involvement for the task, as those in the previous study.

Participants pursuing a mastery goal when negative normative feedback was given reported the highest levels of task *difficulty* at Intervention Phase and the steepest increase in difficulty from Training Phase to Intervention Phase. We found a significant main effect of normative feedback valence in self-assessed task difficulty, with participants who had received negative comparison feedback ( $M = 3.06$ ) evaluating the task as significantly more difficult than those who received positive comparison feedback ( $M = 2.41$ ),  $p = .004$ .

For task *enjoyment* positive feedback appeared to facilitate higher involvement in Intervention Phase for both mastery and performance goal subjects; this finding was reflected in the significant main effect for comparison feedback,  $F(1, 148) = 4.54$ ,  $p = .035$ ,  $\eta^2 = .030$ . Task *involvement* was the lowest

for mastery goal groups and highest for performance goal group when positive feedback was provided. The significant main effect for goal orientation,  $F(1, 148) = 7.99, p = .005, \eta^2 = .051$  was detailed by Scheffe tests, which indicated that participants with a performance goal reported to have been significantly more involved in executing the activity ( $M = 4.15$ ) than those who held a mastery goal ( $M = 3.71$ ),  $p = .025$ . Also, participants who had no pre-set goal to approach the task reported significantly more task involvement ( $M = 4.38$ ) than those with a mastery goal ( $M = 3.71$ ),  $p = .004$ .

For *intentionality in repeating the activity* we surprisingly found higher commitment from baseline, task-requirement driven group, moreso than in the two pre-assigned achievement goals groups. Though we found significant differences between experimental conditions in expressing intent to repeat the activity through the dychotomic choice of yes/no,  $\chi^2(4, 156) = 15.31, p < .005$ , we did not reveal any other statistically significant differences at the level of *time-projection to further repeat the activity* and *intended frequency of task repetition*. Frequency and time projections of future involvement in activity were positively correlated ( $r = .57, p < .01$ ), indicating that the more times subjects wanted to repeat the activity, the closer to the present moment this commitment was. Strong positive correlation patterns were depicted between self-assessed performance contingencies, except for the perceived difficulty dimension, which did not yield significant relations with the other self-appraised aspects.

These results rather suggest that valence of normative feedback has an important influence on how individuals define a task through performance contingencies, moreso than the achievement goals they are assigned. Previous studies on task interest variables tend to support the superiority of mastery goals in aiding activity involvement and enjoyment dimensions, a hypothesis sustained by the results of our first study. For the present study, it can be that the pre-assigned nature of the mastery and respectively performance goals was more strongly deterred by normative feedback valence, which determined their limited impact upon task enjoyment and involvement and also perceived difficulty. Data from performance indicators indicate that performance goals bring about more rapid response and the most adaptive speed-accuracy tradeoffs, while task pursuit through the guidance of task requirements leads to increased response accuracy.

The apparent reduced impact of mastery goals on performance indicators and contingencies leads us to believe that in a competition framed novel activity where normative feedback is provided in real time during task pursuit, assignment of mastery goals is not as effective and efficient as assignment of performance goals or pursuit of activity only through task requirements. It can be that construction of personally relevant mastery goals for a novel activity requires more extensive experience with that activity and integration in a pre-existing network of mastery significant activities, which define competence with focus on ability development.

### 3.4.6 *Limitations and strenghts*

#### *Complexity of feedback and achievement goals*

3 The present study employed written comparison feedback, which focused on whether the competitor performed better or worse than the participant. This type of feedback was informative in that it framed the competitor's performance compared to the participant and for each of the designated 10 items where the feedback message appeared, it pointed out the subject's standing as opposed to the comparison criterion – the competitor.

One limitation of this approach stands in the fact that we used only comparison feedback, which could involve the same type of information processing mechanisms, with an exclusive focus on the comparison process, regardless of its positive or negative nature. For a more comprehensive outlook, feedback given to subjects can also focus on *ability development aspects*: (a) during the task, through *process feedback* – how his performance increased or decreased compared to his responses for previous set in that phase of the activity; (b) after completion of one phase of the task, through *summative feedback* – how much the subject improved his performance from the first set to the last set during a phase of the activity; how much better he did in the current phase compared to the previous phase. Such feedback could offer more information on how task-focused versus competition-focused goals modulate performance when information on proficiency and progress focuses on ability development, not on ability demonstration.

Another limitation of the present study relies in the use of only one type of feedback for a group of participants. This is a frequent limitation of most experimental studies which investigate the impact goals-feedback on performance markers. Still, in real-life settings individuals face a multitude of feedback messages, which can be contradictory, come from various sources (hence the importance of credibility of the source), have positive and negative valences, refer to the task but also to more global labels (e.g. global evaluations like “You are stupid” or “You are so intelligent”) and so on. While we acknowledge that experimental research cannot reconstruct the complexity of such contexts, a necessary aspect that could guide further research using the paradigm we developed, refers to providing subjects with more types of feedback messages during the pursuit of a task. These could encompass positive and negative aspects, social comparison and ability development dimensions.

#### *Use of false versus accurate comparison feedback*

In experimental settings, accurate versus erroneous feedback has been used as persuasive influence (Bandura & Locke, 2003) to modulate the level of pain tolerance (Litt, 1988), use of problem solving strategies (Bouffard-Bouchard, 1990), perseverance in solving difficult problems (Jacobs, Prentice-Dunn, &



Rogers, 1984), or physical effort in a competition (Weinberg, Gould, Yukelson, & Jackson, 1981).

The feedback messages we employed in the present study were false messages, which did not reflect the actual performance of the participants and were differentially attributed for each experimental condition. Most of the research studies on the achievement goal-feedback relationship use false performance feedback. This is in part due to time concerns related to the actual evaluation of performance and to attempts of keeping the participant involved in the activity, avoiding breaks that could interfere with the experimental manipulations. We believe that in some cases subjects can monitor their performance levels and detect that feedback messages do not reflect their real performance. When only one type of feedback is used in a manipulation, any type of feedback, this can lead subjects to disengage from the task, because in real-life setting one-dimensional, repetitive feedback is seldom present. With high difficulty tasks false negative feedback can often reduce task involvement, while positive feedback maintains task involvement, but does not influence performance levels. When low difficulty, simple tasks are presented, as in our study, a potential limit can be rapid strategy development in approaching the task, which determines detection of the bogus nature of given feedback. We tried to control that by defining feedback through global performance, not through specific accuracy or rapidness dimensions.

### 3.4.7 Implications for further research

More detailed investigation of the relation achievement goals – task procedural goals could offer valuable insight into the processes and differential strategies individuals employ when they represent desired or feared outcomes in terms of development or demonstration of competence. We strongly believe that the future of this exhaustive line of research resides in: (1) identifying the mechanisms which underlie the impact of achievement goals on objective performance indicators, not only on performance contingencies and (2) investigating the manner in which mastery versus performance goals interact with task procedural goals in influencing performance.

An interesting aspect to be further analyzed refers to a differential focus on dimensions of performance, depending on the type of achievement goal one holds. In a competitive context, do individuals choose to focus on rapidity rather than accuracy? Or do they evaluate *ab initio* one parameter as being the most relevant for performance, hence disregarding other indicators? In the experimental activity we designed, the “competitor” performs the same task, at the same time as the participant and the presence of the competitor is accessible in real-time to the participant. Competence in approaching this activity is strongly based on a normative standard – the competitor’s performance, an aspect both mastery goal and performance goal participants acknowledge when listing the goals they followed in the intervention phase of the experiment.

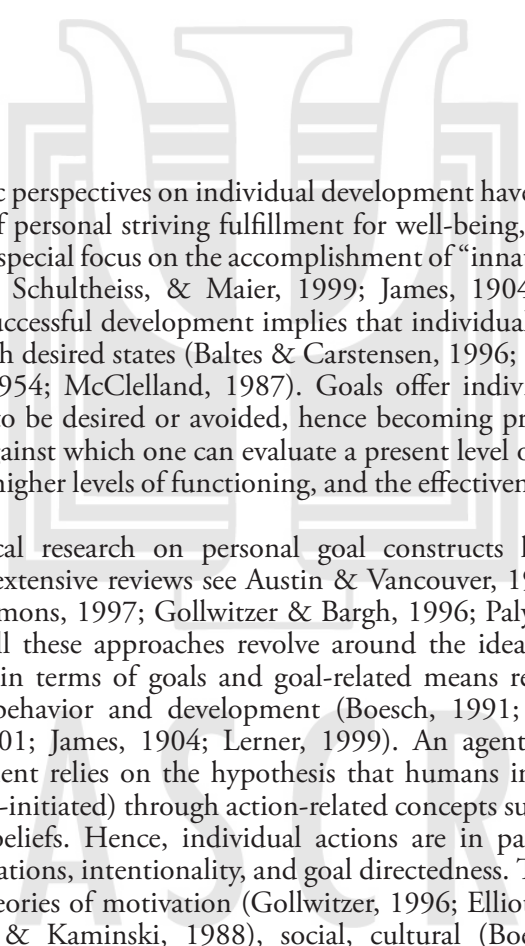


# CHAPTER 4



## LIFE THROUGH THE LENSES OF PERSONAL GOALS





Humanistic perspectives on individual development have long pointed out the importance of personal striving fulfillment for well-being, life meaning and happiness, with a special focus on the accomplishment of “innate” needs (Allport, 1961; Brunstein, Schultheiss, & Maier, 1999; James, 1904; Maslow, 1954; Rogers, 1963). Successful development implies that individuals progress toward their goals or reach desired states (Baltes & Carstensen, 1996; Carver & Scheier, 1990; Maslow, 1954; McClelland, 1987). Goals offer individuals a reference point of what is to be desired or avoided, hence becoming progress markers or ideal outcomes against which one can evaluate a present level of functioning, his progress towards higher levels of functioning, and the effectiveness of goal-related behaviors.

Psychological research on personal goal constructs has flourished in recent years (for extensive reviews see Austin & Vancouver, 1996; Brunstein & Maier, 1996; Emmons, 1997; Gollwitzer & Bargh, 1996; Pals & Little, 1983; Pervin, 1989). All these approaches revolve around the idea that actions and their structuring in terms of goals and goal-related means represent the basic unit of human behavior and development (Boesch, 1991; Brandtstädter & Eckensberger, 2001; James, 1904; Lerner, 1999). An agentic perspective on human development relies on the hypothesis that humans interpret behaviors (personal or other-initiated) through action-related concepts such as goals, plans, intentions, and beliefs. Hence, individual actions are in part determined by reflexive interpretations, intentionality, and goal directedness. These assumptions can be seen in theories of motivation (Gollwitzer, 1996; Elliot, 2005), problem solving (Dörner & Kaminski, 1988), social, cultural (Boesch, 1991), and developmental psychology (Brandtstädter, 1998; Brandtstädter & Lerner, 1999; Lerner, 2005) as well as applied domains such as clinical (Schwartz, 1951) or educational psychology (Bruner, 1996).

From a life-span perspective, individuals are conceptualized as active agents in the construction, selection, and implementation of their developmental paths. Personal goals contribute to the organization of action (Pervin, 1989) and have two main functions from a developmental perspective: (a) they direct and organize behavior over time into meaningful action units, giving meaning to

development; and (b) they facilitate acquisition and use of resources, reducing situational complexity, and processing of environmental demands. Brandtstädter (1998) integrates the interplay of goals, goal-directed action, and development in the concept of **intentional self-regulation**, stating that: “Through action, and through experiencing the consequences of our action, we construe representations of ourselves and of our material, social, and symbolic environments, and these representations guide and motivate activities by which we shape and influence our behavior and personal development.” (p. 807). This approach of bilateral determination and co-construction between individual and environment is a recurrent aspect of developmental models (see also the developmental systems theory of Ford & Lerner, 1992). Though we ascertain the theoretical and applied implications of such an approach, we must note that as each period of development involves growth but also declines, human agency is encased in functional and structural limitations, which are due to within individual or environmental constraints. Though we start our analysis of personal goals with a positive focus on their impact upon action, we consider, in line with the Selection-Optimization-Compensation model of development (Baltes, 1997), that human agency is not omnipotent, but rather limited.

#### 4.1 Personal goals: definitions and general characteristics

In the present thesis we define *personal goals as goals which have high relevance for an individual, for longer periods of time in his development*. In order to offer a glimpse into the complexity of personal goals, we first discuss major defining features of these goals, which we extracted from a critical analysis of general goal literature and personal goal literature. Then we review some concepts that encompass the meaning of personally important goals.

##### 4.1.1 Characteristics of personal goals<sup>3</sup>

Most studies regarding personal goals focus on content and system dimensions (Freund & Baltes, 2002; Nurmi, 1992; Salmela-Aro & Nurmi, 1997), which are not enough in specifying their characteristics. The literature on goal processes and structures is usually partisan to certain theoretical models, or focuses on specific aspects of goal dynamics, like goal setting, goal framing and so on (Austin & Vancouver, 1996; Bandura & Locke, 2003; Carver & Scheier, 1998; Cochran & Tesser, 1996; Fishbach & Ferguson, 2007; Kruglanski, Shah, Fishbach, Friedman, Chun, & Sleeth-Keppler, 2002; Pervin, 1991; Pintrich, 2000). In order to postulate several personal goal characteristics which in our opinion have high significance for these types of goal, we derived them from different approaches on goals and present them in an integrated form, which

<sup>3</sup> This segment is part of a more extensive analysis on personal goals, previously published in *Cognition, Brain, Behavior. An Interdisciplinary Journal* (Negru, 2008).

can facilitate their understanding. We acknowledge that these are not the only defining features, but they are sufficient in creating a more operational image of personal goals.

*Relevance* refers to the perceived importance or value of a goal, in the context of goal systems; it represents a key factor in increasing goal *commitment* and *persistence* in goal achievement (Austin & Vancouver, 1996). Goal relevance can be analyzed with focus on goal-setting or goal-striving. On the one hand, focus on *goal setting* involves contents which are indicators of potential goal achievement (e.g., Dweck, 1996; Freitas & Higgins, 2002). On the other hand, *striving* reflects processes that lead to the implementation of a goal. This is done by means of action oriented behaviors and cognitions the individual activates and carries out in order to accomplish that goal (Gollwitzer, 2003; 1996). An individual can evaluate a goal as being of high importance, when integrating it in his system of goals. For instance, an adult can regard the goal of “becoming a parent” as having high relevance. Still, when engaging in activities that transform goals into actions, therefore focusing on goal attainment, other goals, of lesser perceived importance, may have primacy. In this case, work related goals, which are evaluated as less important by the individual, but are more urgent to implement, can be pursued with higher priority.

Individuals set and pursue many personal goals at one time, which are *integrated* in goal systems. As mentioned above, some of them will be accomplished, others postponed or relinquished. Interactions among personal goals modulate their relevance and probabilities of attainment. A specific distinction arises from whether we focus on personal goal outcomes or end-states versus processes or means. End-states refer to envisioned finalities which have different levels of specificity. Means are more interchangeable and contain procedural information and mechanisms relevant for achieving an outcome (Fishbach & Ferguson, 2007). The interplay of outcomes and means is reflected in patterns of interaction among goals. According to goal models (Kruglansky et al., 2002; Pervin, 1991) the main patterns refer to: multidetermination (multiple goals can be integrated or in conflict with each other), equipotentiality (the same goal can lead to very different outcomes), equifinality (an outcome can be reached by means of different goals), multifinality (more goals can be reached through the same means). In a thorough assessment of personal goals, these patterns of interaction unveil inter-individual and intra-individual differences in goal dynamics. Any personal goal must be analyzed through the relations it has with other personal or more specific task goals (Little, 2007).

The *differential accessibility* of a personal goal is construed as its variability in activation across time and situations (Fishbach & Ferguson, 2007). We further refine this definition and consider high accessibility of a personal goal should be construed in terms of both perceived high relevance and action pursuits for its achievement. A goal can be active, temporarily deactivated or permanently deactivated or relinquished. The level of activation of a personal goal can vary as a function of numerous factors, of which we mention but a few. A personal goal remains active and guides action behaviors when there is increased availability of *means* (internal and external) for its attainment (Kruglansky et al., 2002).

*Integration or conflict with other goals*, whether they are personal or imposed by external factors, also modulates its activation. For a university student, a personal goal of “building a family” can be in conflict with the normative request of “graduating from university in three years”. This conflict may lead to a temporary or final deactivation of the family goal, in favor of the graduating goal. *Developmental pressure* in focusing on specific goal domains or contents is another factor in reducing or enhancing the activation of a personal goal. This aspect will be more thoroughly analyzed in the next section of the chapter.

The *content of personal goals* is domain specific. Possible life domains at adult age being: work, family, leisure, intimacy. Each life domain can be analyzed through specific structural coordinates that usually change in line with developmental requirements. For instance, during young adulthood, the normative focus in the work domain is on in-depth exploration of career choices, while in middle adulthood it tends to shift toward stabilization in a chosen work field (Super, 1990). We must acknowledge that individual differences in defining the contents of personal goals offer high variability in approaching normative requests (Arnett, 2000; Little, 2007).

The *specificity* of personal goals reflects individual variations in projecting the future on qualitative and abstract dimensions, as compared to representing it through quantitative, task-related coordinates. For instance, “buying a 2008 Audi A6” can be a high relevance goal for one individual while “reaching independence from my family” has the same value for another. As Austin and Vancouver (1996) pointed out, there are numerous criteria to mapping goal specificity. Research on personal goals investigates them either through self-reports elicited by the relevance question (what is important or relevant to you), or through selection of a personal goal from a predefined list (Little, 2007; Nurmi, 1992; Pesseau, Sniehotta, Francis, & Little 2008). In this thesis, we refer to specificity in terms of abstract versus task concrete personal goals.

#### 4.1.2 Conceptual construction of personal goals

There are multiple taxonomies and theories that try to describe or explain what the “personal” element means. In order to offer some coherence to these conceptual approaches, we propose a two level analysis, in terms of their specificity and relevance for present actions.

On a first level of analysis, we have concepts that try to encompass goal patterns that are relevant in the present and focused on self-regulatory, task and domain-specific actions. Klinger (1996) uses the term *current concerns* to define goals of high priority for individuals, at one point in time. Csikszentmihalyi and Beattie (1979) refer to *life themes* as problems which a person wants to solve “above everything else”. Emmons (1986) considers that *personal strivings* represent patterns of goals that reflect what an individual is typically trying to achieve. Emphasizing the importance dimension, Little (2007) defines *personal projects* as “extended sets of personally salient action in context” (p. 25), which can refer to goals from different levels of a hierarchical goal system (Pesseau et



al., 2008). *In analyzing these terms, we believe that they reflect the striving element of personal goals. The level of specificity can be variable, but they tend to be bound more closely to groups of tasks and activate plans that are task related.*

On a second level of analysis, we have goal structures that focus on ideal representations of a future self, with impact on present specific goals. They have lower levels of specificity and more global relevance, being directly related to the development of stable personality structures (Emmons & Kaiser, 1996). Markus and Nurius (1986) see *possible selves* as representations of desired and undesired qualities of the self, in terms of attainment or avoidance. In a similar manner, Gollwitzer and Kirchhof (1998) coin the term *self-defining goals* as “people’s ideal conceptions of themselves as possessing a readiness or potential to enact certain content-specific classes of behavior” (p. 394). Refining the meaning of ideal self development, Higgins (1996) introduces the concept of *self-guide*. A self-guide refers to an individual’s regulatory focus, between an ideal self-guide, with emphasis on hopes, wishes, and aspirations and an ought self-guide, with emphasis on the required duties and responsibilities (Shah, Higgins, & Friedman, 1998). *These concepts aim at mapping personal goals in the context of global self-development and incorporate a more general view of intentionality. They reflect the search for superordinate, higher-order structures that guide development and self-construction. We view these types of personal goals as having very high relevance, but they are more ubiquitous, and can be evaluated mainly through their impact on the self. Still, we must ascertain a structural evolution from the possible selves to the self-defining goals and the self-guide. While the first refers to global qualities of the self, the next two define a more “tangible”, cognitive, and behavioral self.*

There is a high degree of overlapping in the above mentioned concepts, with each term bringing additional information to facets of personal goals. From their analysis we extracted some relevant observations. First, in line with general definitions of goals, personal goals integrate projections of future outcomes (what one wants to achieve) or processes (how one wants to achieve an outcome), on dimensions of desirability (I want to) and requirement (I have to). Second, they maintain high individual relevance for longer periods of time, with different levels of activation. Third, they have variable specificity and are connected to general domains of individual functioning (work, intimacy, leisure, etc.). Fourth, they organize and give coherence to intermediate and lower-level goals, by referring to themes, concerns or projects that guide an individual’s development.

#### 4.2 Methodological dimensions in the investigation of personal goals<sup>4</sup>

As Shakespeare once answered the essential question “how is the world” by simply stating “as you like it”, we commence our analysis on the complexity of personal goal assessment by a similar statement: personal goals are what the subjects consider of utmost relevance from their perspective, in a given time-frame. No predefined rules apply here; no good or bad, appropriate or inappropriate

<sup>4</sup> This review (4.2-4.3) was previously published in *Cognition, Brain, Behavior. An Interdisciplinary Journal* (Negru, 2011).

contents can be given. The personal relevance component in investigating any goal structure must start on these tenets. Mapping intentionality contents is a necessary component of any thorough approach on human motivation in the transition to adulthood. Unfortunately, when this mapping occurs on researcher predefined goal sets and conceptualizations; results can be significant and confirm research hypotheses, but might have limited relevance for the subject's ecological goal systems.

Methodological approaches in the investigation of personal goals encompass a high array of techniques (Baltes & Freund, 2003; Cantor & Blanton, 1996; Elliot & Friedman, 2007; Freund, 2006; Emmons, 2003; Cox & Klinger, 2004; Little, 2007; Riediger, 2007; Salmela-Aro & Nurmi, 2004). They have been mainly developed around the assumption that personal goals are set apart from other goal structures by their increased perceived importance or value for the individual (Austin & Vancouver, 1996). While there is high acceptance of the fact that personal goals are best captured by idiographic methods, there is less agreement about how these methods can extract information that best discriminates among individuals and more often categories of individuals (Roberts, O'Donnell, & Robins, 2004).

When research is focused on exploring individual patterns of personally relevant and subjectively defined goals, an idiographic approach is appropriate, but the multitudes of meanings in formulating each goal, can make their analysis and interpretation somewhat difficult. This is one of the main reasons why mainstream psychological research has often shunned an idiographic analysis of goals, and rather focused on developing normative approaches to investigate goal structures and processes. Hence, the present chapter critically analyzes multidimensional approaches in the analysis of personal goals, from both a theoretical and a methodological perspective.

#### ***4.2.1 Normative approaches in the study of personal goals***

##### *Theory*

Normative approaches in the study of personal goals rely on developmental requirements specific for a certain age-group. Dwelling on the theoretical approach of human development advanced by Erikson (1968), a series of psychologists like Havighurst (1972), Hagestad and Neugarten, (1985), Dreher and Oerter (1986), have continued to map age-graded societal driven goals, which individuals pursue on a normative basis.

*Developmental tasks* refer to developmental differences in cultural norms, expectations, rules, and activity patterns. They offer: (a) information about accessible and desired age-specific goals; (b) models for reaching these goals and (c) normative standards and time-frames for performing the necessary behaviors for achieving these goals (Nurmi, 1991). Developmental tasks are inherently linked to normative life-events, like starting college or getting a first job. They

orient the individual toward the future and provide socio-cultural landmarks for an individual's life-span development.

Methodological approaches which chart personal goal contents through developmental tasks are guided by the assumption that all individuals pursue a standard set of normative goals contents, and their pursuit is nuanced qualitatively and quantitatively. From a procedural perspective, participants are provided with a list of goals reflecting representative developmental tasks for their age group and they have to select and / or appraise them in terms of personal relevance, level of achievement emotional valence and so on. This approach controls the content dimension of personal goals, as individuals choose and assess them from a given pool of developmental tasks. Hence, comparisons between individuals and statistical reliability indexes can be computed more easily.

### *Method*

Pinquart, Silbereisen, and Wiesner (2004) analyzed changes in discrepancies between desired and present states of developmental tasks in adolescence. They chose five developmental tasks which are representative for adolescence. Subsequently, participants were asked to assess these tasks in terms of present state of development and then in terms of desired states of development. For instance, for the developmental task "preparing for a future career", the item regarding the present state was "Have you already decided about your future occupation?", which was appraised on a scale from 1 (*not yet*) to 3 (*I am already decided*). For the same task the item reflecting a desired future state was "Would you like to have already decided about your occupation?" which was similarly assessed on a scale from 1 (*That's not important to me right now*) to 3 (*I would like to be decided very soon*). The authors consider that solving a developmental task (by reducing a discrepancy between a present state and a desired state) can be a precondition for setting new goals in other developmental tasks and for generation of new discrepancies between goals/present states (Pinquart et al., 2004).

In a ten-year longitudinal study on personal goals during emerging adulthood, Salmela-Aro, Aunola and Nurmi (2007), argued that personal pursuits change in time due to developmental requirements. They asked participants to assess four times during the ten years how such requirements influenced their goals. The researchers framed the tasks in terms of life events, and they referred to cohabitation or marriage, birth of a child, graduation from university, and employment in a full-time job representative for one's education (Salmela-Aro et al., 2007).

Using a slightly different approach of developmental requirements, Roberts, O'Donnell and Robins (2004) investigated major life goals and personality trait development in emerging adulthood. Their normative approach for assessing life goals reflected developmental tasks, but also tapped into differences in values and interests, capitalizing on the work of Richards (1966). They asked participants to rate a number of 26 life goals in seven domains: Economic (desiring a high status career), Aesthetic (desiring to produce good artistic work), Social (desiring to help others in need), Relationship (desiring a family), Political (desiring to

be influential in public affairs), Hedonistic (desiring to have fun), and Religious (desiring to participate in religious activities). For instance, in the Economic domain the goals were: “having a high-status career, having an influential and prestigious occupation, having a high standard of living and wealth, owning my own business, and making my parents proud.” (Roberts et al., 2004, p. 544). Life goals were rated on a 5-point scale ranging from 1 (*not important to me*) to 5 (*very important to me*).

#### 4.2.2 *Mixed/Multidimensional approaches in the study of personal goals*

Though the bulk of motivational science today relies on standardized instruments to assess and monitor intentional structures and processes (Elliot, 2005; Pintrich, 2002), important areas of individual representations of intentionality remain uncharted. *Idiographic* methods (Lamiell, 1981) assess motivational structure starting from specific attributes generated by the participants, such as current goals, which contain highly individualized (*idiographic*) data. Researchers then ask subjects to appraise each goal on standard rating scales, thus attaching quantitative, descriptive (*nomothetic*) information to a self-relevant construct (Cox & Klinger, 2004). These ratings make possible comparisons among a person's goals, and after being averaged within individual respondents, these values can be compared across individuals.

Idiographic approaches of motivation have a long history in psychological discourse, starting with James' (1902) and Allport's (1937) research on human personality structures. An important influence on this approach is that of George Kelly's investigation of personal constructs, which brought into attention the relevance of how individuals attach meaning to their environments. The constructive alternativism in Kelly's (1955) theoretical system relies on the observation that “man looks at his world through transparent patterns or templates which he creates and then attempts to fill over the realities of which the world is composed” (p. 8-9). A similar life context can determine a myriad of individual construals, and “all our present interpretations of the universe are subject to revision or replacement” (Kelly, 1955, p. 15). Hence, in order to maintain relevance for what we investigate in terms of personal pursuits, their analysis must start from the idiosyncratic, context, and person specific formulation given to that pursuit.

Using personally relevant, self-generated goals as a basis for more standardized assessment is a global approach which has gained the attention and research resources of many psychologists in the last decades. The mechanics of a multidimensional approach in analyzing personal goals is simple. Individuals list personal goals, pertaining to one or more predefined life domains, or with no life-domain restraints. Afterwards they evaluate the self-selected goals on various dimensions of relevance for the research hypotheses. Concurrently, standardized assessment of other relevant aspects for the investigation of personal goals dynamics is applied. Depending on the research focus, standardized assessment can refer to self-efficacy (Cantor, Norem, Niedenthal, Langston, & Brower,

1987), well-being (Diener & Fujita, 1995; Emmons, 2003), organizational commitment (Maier & Brunstein, 2001), work-life balance (Wiese, 2007, 2000), career success (Abele & Wiese, 2008; Wiese & Freund, 2005).

The generation and subsequent selection of personally salient goals offer intra-individual ecological validity to goal contents. Self-assessment of goal dimensions is both subjectively relevant and objectively quantifiable, offering a strong basis for comparisons between goal contents of an individual and goal dimensions in a sample of individuals. Goal processes and relations with other dimensions of psychological and social functioning are assessed by means of standardized instruments, depending on the research questions. Patterns of personal goal structures and relations between personally salient goals and more general psychological mechanisms emerge, constructing a fine-grain analysis of goal structures.

## Personal strivings analysis

### *Theory*

Emmons (1996) defines personal strivings as “recurring objectives that characterize a person’s intentional behavior” (p. 315). He further details them in terms of “what a person is typically or characteristically trying to do” (Emmons, 1989, p. 92). Personal strivings are conceptualized in the control theory of self-regulation (Carver & Scheier, 1998), as reference values which guide individual behavior. In this context, personal strivings signal the existence of a discrepancy, which needs to be attended to through behavioral activation.

Emmons (1996) maps three main domains of goal investigation: goal content (what a person intends to do), goal orientation (how an individual usually frames goals – mastery vs. performance, approach versus avoidance), and goal parameters (structural properties of goal systems, referring to levels and values of interactions).

### *Method*

Generation of personal strivings is done by free-listing of a determined (usually 15) number of strivings, after presentation of a brief definition, examples and strivings’ basic characteristics. Subjects are told that a personal striving is “an objective that you are typically trying to accomplish or attain.” They are given examples of personal strivings, and it is stressed that these strivings could be either positive or negative. In other words, they could be about something that is typically approached or sought after or about something that is avoided.

For appraisal of personal strivings Emmons (1986, 1989) constructed the *Striving Assessment Scales*, which consist of 18 dimensions reflecting key attributes of goals. These dimensions refer to striving: *value, ambivalence, commitment, importance, effort, difficulty, causal attribution, social desirability, clarity, instrumentality, probability of success, confidence, probability if no action, impact, and past attainment* (Emmons, 1986).

In order to facilitate the appraisal of relations between strivings, Emmons (1986) developed the *Striving Instrumentality Matrix (SIM)*, a matrix with the rows and columns consisting of the individual's listed strivings. Subjects compare each striving with every other striving in terms of helpful versus harmful relations. This appraisal is conducted on a scale from -2 to 2, where -2 means *very harmful effect*, -1 *somewhat harmful effect*, 0 *no effect*, 1 *somewhat helpful effect*, and 2 *very helpful effect*. Results are recoded on a scale from 1 to 5, in order to aid statistical analysis of data. In order to compute a goal relation index, Emmons (1986, 1998) uses a total conflict score, which is obtained by summing the ratings on one goal in relation with all other goals in the matrix. Low scores indicate conflict and high scores indicate instrumentality (on the recoded results). A similar technique was used by Emmons and King (1989) in assessing goal differentiation in order to analyze the degree of perceived independence or interdependence between goal contents. Participants appraised in the same matrix format how similar they perceived each goal, gradually paired with all other pre-listed goals.

Another dimension of goal relations refers to goal differentiation, seen as the level of interrelations of personal strivings in a person's current striving system. Emmons and King (1989) view high differentiation as including mostly independent strivings (the fulfilling of one striving has no effect on the fulfilling of others), while low differentiation means mostly interdependent strivings (relations of facilitation or conflict exist between strivings).

The self-generated personal strivings can be complexly coded in Emmons' methodological approach, using the *Personal Striving Coding Manual* (Emmons, 1989). A distinction between high-level and low-level strivings is made, the former referring to a higher level of abstractness, self-analysis and emotional involvement (mentioned in the formulation of the striving). The latter types of low-level strivings are defined by a higher degree of behavioral specificity, being formulated in more concrete, operational terms. In order to facilitate coding of these categories, Emmons (1992) opted for giving each subject a single rating on a five-point scale, where 1 means *more low than high-level strivings or thoughts* and 5 refers to *almost all high-level strivings or thoughts*. This measure globally evaluated the general level of strivings in an individual. Regarding this dimension of personal goals, Emmons (1992) found that people who describe their goals in global terms tend to be more depressed, a possible explanation residing in them positioning themselves further away from goal achievement.

In order to further investigate structural and procedural aspects regarding personal striving representation and implementation, Emmons and colleagues (Emmons & King, 1989; Emmons, Cheung, & Tehrani, 1998) also analyzed what behavioral and procedural steps individuals take towards striving accomplishment. This is done through experience sampling procedures, plan generation or diary studies mapping actual pursuit of goals. The behaviors or plans individuals listed were also coded in terms of procedural overlap among goals, through mapping behaviors that are recurrent in more goals or specific for certain goals.

## Personal projects analysis

### *Theory*

Brian Little (2007) defines *personal projects* as “extended sets of personally salient action in context” (p. 25). Personal projects are idiosyncratic and can refer to goals from different levels of the hierarchical goal system (Presseau et al., 2008). Personal projects claim their theoretical underpinnings in the works of George Kelly (1955) on personal constructs and their adjacent assessment by means of repertory grids. Aiming at the investigation of intentional action in context, Little (2007, 1983) constructed twelve measurement criteria, which he groups around four methodological tenets. As Little and Chambers (2004) synthesize, investigation of personal projects is *constructivist* (personal salience of self-generated goals), *contextual* (reflects ecological, context-specific strivings of the individual), *conative* (relies on the intentional character of individual pursuits) and *consilient* (comprises affective, cognitive and behavioral dimensions of individual pursuits).

### *Method*

From a methodological perspective, elicitation of personal projects is done on the following algorithm: (a) a short written description of what personal goals refer to is given to participants; (b) examples of personal projects elicited by diverse subjects are provided; (c) listing of personal projects is encouraged, with limitations regarding the number of projects to be elicited depending on the specifics of the research aims; (d) subjects are asked to select from the initially generated pool of personal projects a variable number of projects, based on specific criteria; (e) the self-selected personal projects are analyzed in greater detail through assessments on multiple goal dimensions. Criteria for goal selection can refer to the time-frame for their implementation, or subjective relevance in a predefined future, or perceived urgency in actively approaching them (Little, 2007). For the latter category, an interesting approach resides in asking participants to select projects that are actively pursued in the present time-frame and projects that are currently “put on hold”. The number of projects participants are asked to select ranged in existing research from three (Nurmi & Salmela-Aro, 2002; Salmela-Aro, 1992), to five (Sheldon & Kasser, 1998), six (Brunstein, 1993) or ten (McGregor & Little, 1998).

The pre-selected personal projects are appraised by individuals on several dimensions, which are chosen depending on the objective of the specific research, with a brief description of the dimension preceding the assessment, which is usually done on a 11-point Likert scale (from 0 to 10). In personal projects research up to 35 dimensions have been used for goal appraisal (McGregor & Little, 1998), with 17 dimensions proposed in the initial article on personal projects (Little, 1983). These dimensions are usually collapsed into dimensional clusters, in order to facilitate global statistical analysis of data; the clusters are: meaning, structure, community, efficacy and stress. Little and Chambers (2004)

point out the importance of ad hoc selection of goal dimensions in order to make them more “attuned to the eco-setting being explored” (Little & Chambers, 2004, p. 69). Personal project dimensions which can be explored in research studies include: importance, enjoyment, difficulty, visibility, control, initiation, stress, time adequacy, outcome, self-identity, other’s view, values congruence, positive impact, negative impact, progress, challenge, and absorption (Little, 1983).

Relations between personal projects are assessed in terms of how goals impact each other, when analyzed in pairs. Appraisal is usually conducted on a scale from 0 to 10, where lower values indicate reduced interactions between projects. A project cross-impact matrix (Little, 1983) has been adapted from the methodological tenets of Emmons (Emmons & King, 1988) in order to further detail the valence of goal interactions, in terms of facilitation and conflict.

Advocating an idiographic and a normative approach to personal projects analysis, the former is defined by Little and Chambers (2004) as examination “between dimensions within the single case, by correlating ratings on dimensions across projects” (Little & Chambers, 2004, p. 73), while the latter refers to “appraisals on dimensions for each project [...]”. A *Personal Project Matrix* is usually employed to guide self-appraisals of personal project relations. Mean scores on each of the appraised dimensions are then calculated for each individual and used, much like conventional test items, to examine linkages between project dimensions, with traits and contextual variables, and with diverse measures of well-being” (Little & Chambers, 2004, p. 73). In fact, according to these definitions, an idiographic approach refers to within subject variations, while a normative approach reflects between subjects differences in personal project’s appraisals.

The normative approach for personal projects is defined by five major theoretical factors: project *meaning*, *structure*, *community*, *efficacy* and *stress* (Little & Chambers, 2004; Little, 1989). These standard dimensions for PPA (personal project analysis) represent heuristic guidelines for between subjects analyses and as the authors advocate, they frequently emerge in factorial analyses. The number of factors used in research studies specifically depends, though, on the aims of each research study.

## Personal concerns

### *Theory*

In defining personal concerns, Klinger and Cox (2004a) consider that „The construct of *current concern* refers to the state of an individual between two time points, the one of becoming committed to pursuing a particular goal and the other of either attaining the goal or giving up the pursuit. Because a current concern spans the duration of the pursuit and binds together psychological processes over that period, it constitutes a *time-binding process*” (Klinger & Cox, 2004, p. 9). The authors view personal concerns as both binding goals and subjective states associated with the pursuit of those goals, for which an



individual has manifested commitment. In a certain time-frame, these goals and associated states are highly activated in memory and have a significant emotional valence, positive or negative. The importance given to emotional responses of the individual linked with goal pursuit represents a distinctive aspect of this approach on personal goals. Klinger and Cox (2004a) see emotional responses as offering evaluative feedback during goal pursuit and as being inherently associated with goal fulfillment or disengagement. The interest in the emotional dimension of goal pursuit has guided the two researchers in applying their model of personal concerns in approaching substance abuse problems (alcohol and drug use).

### *Method*

Similarly to the other methods described above, the investigation of personal concerns uses as content material the personal goals (concerns) individuals have previously listed. Starting with the *Interview Questionnaire* (Klinger, 1987) and further refining the methodology with the *Motivational Structure Questionnaire* (MSQ) and the *Personal Concerns Inventory* (PCI), Cox and Klinger (1986, 2004b) aimed at developing a goal analysis tool that can be used in counseling and therapeutic contexts.

The Motivational Structure Questionnaire (MSQ) represents the most complex instrument developed by the two authors and therefore we focus on describing its dynamics. The descriptions of the procedure we next detailed are summarized from Cox and Klinger (2004b).

In Step 1 appraisal starts by asking participants to go through a list of *life domains* in which they may have concerns; this should help them in recalling and thematically organizing current concerns. Next they are instructed to briefly describe these concerns, though it is pointed out that that not all people have goals in all life-domains.

In Step 2 of the procedure, a list of *action verbs* is given to participants (e. g. to attain, keep, restore, avoid, prevent). They are instructed to choose for each previously listed concern, the verb that best describes the action they want to take in order to solve each concern. After each goal is associated with an action verb, participants are asked to use that verb in a short sentence that describes what they want to do in order to pursue and resolve each concern. This procedure helps in determining the valence (positive, negative, or ambivalent) of each goal, and reduce ambiguity in their classification. For instance, the same striving of “focusing more on schoolwork” can be framed by one individual as “avoid failing Math”, while for another it can refer to “getting the best grades in my class”. Hence, the former goal has higher avoidance loading, while the latter one is approach centered.

From Step 3 on, the nomothetic approach to concern appraisal is introduced. Participants can *rate* their goals on a number of maximum ten scales, which facilitate computation of motivational indices, in order to make possible comparisons among individuals. These scales are: *role*, focusing on the individual’s level of active involvement in goal pursuit; *commitment*; *joy* (value scale); *unhappiness* (value scale); *sorrow* (value scale); *chances of success* (expectancy

scale); *chances of success if no action is taken* (expectancy scale); *time availability*; *goal distance*.

In analyzing the psychometric properties of this personal goal assessment measure, Cox and Klinger (2004b) consider that stability indices for these instruments are not the most relevant ones, as goals can change in intensity and importance as time passes. Internal consistency is appraised as acceptable, with Cronbach's Alpha values ranging from .81 to .97 for the seven conventionally scaled variables ( $N = 182$ ). The domains where the instrument has been used are: physiological and cognitive processes (e.g., skin-conductance responses, attentional biases for concern-related stimuli), mental processes (e.g., the content of thoughts and dreams), life style (e.g., participants' daily activities), workers' characteristics (e.g., employee satisfaction and work patterns in industrial settings), and treatment outcomes (e.g., symptom remission and psychological functioning one-year post-treatment).

## Life tasks

### *Theory*

Life tasks are defined as a "set of tasks that the person sees himself or herself working on and devoting energy to solving during a specific period in life" (Cantor, Norem, Niedenthal, Langston, & Brower, 1987, p. 1179). Nancy Cantor and colleagues (Cantor & Blanton, 1996; Cantor & Fleeson, 1994; Zirkel & Cantor, 1990) view life tasks in a very similar manner to *developmental tasks*, and as relevant for construction of complex representations of the self. The authors include life tasks in the category of *strategic pursuits*, which exert situational, developmental and personal influences upon individual behavior over a period of time (Cantor & Blanton, 1996). They reflect the *social roles* individuals fulfill in a period of their development, and life tasks prioritization is usually linked with the relevance of each role in one's life space.

Striving for life tasks fulfillment is a systematic endeavor, which short-circuits lower probabilities of success or negative adjacent emotions, partly due to their normative, age-graded character (e. g. college students' aim at graduating from university though this experience can be new and frustrating). From a research perspective, life tasks have been mainly studied in relation with the appraisal strategies individuals use in their pursuit. Cantor and Blanton (1996) define appraisal strategies as "individuals' cognitive representations of themselves pursuing a task" (p. 342). For instance, Norem and Cantor (1986) observed that in approaching examinations, college students use defensive pessimism as an appraisal strategy to overcome their anticipatory anxiety regarding exam contexts.

### *Method*

The methodological tenets of Cantor's approach of life tasks differs from the previously presented ones, in that it was constructed not so much as

a paradigmatic manifesto of personal goals, but as a tool in analyzing specific aspects of individual and group functioning. Cantor and colleagues (Cantor & Harlow, 1994; Cantor & Langston, 1989; Cantor et al., 1987) research studies on life tasks aim at investigating: (a) directions in task appraisal at a within subject level; (b) task – context links, namely how different contexts prime and sustain different tasks and task appraisals; (c) identification of task-relevant strategies. Hence, the methodology employed in researching life tasks is more heterogeneous, but the complexity and number of studies conducted come to offer more empirical support.

The initial content information for life tasks relies on self-generated current life tasks that individuals evaluate as having relevance for their every-day life, which are then self-appraised on multiple dimensions and coded in normative task categories. In order to offer multidimensionality to this idiosyncratic listing, Cantor introduces in different studies concurrent assessment of: (a) ideal versus actual self in a specific role (e. g. student), following Higgins' (1987) differentiation between an actual and an ideal self and aiming at the investigation of possible discrepancies between ideal and actual self; (b) representative life situations which best describe the life-task categories, hence specifying the individual's life space; (c) plans and behaviors the person attaches to the pursuit of life tasks.

The normative life-task categories Cantor and colleagues (1987) use when working with students are grouped in two main domains: achievement (doing well academically, establishing future goals, and managing time) and interpersonal tasks (making friends, being on one's own, and establishing an identity). These domains were extracted from previous exploratory research on the target group. The interesting aspect here relies in the fact that students are the ones that integrate each pre-listed task in one of the domains, hence making the coding process more individualized than in the previous approaches of personal goals.

Cantor and Harlow (1994) advocate against a purely idiographic approach in the analysis of personal goals, though they acknowledge its role in detailing the unique characteristics of a person's goal system. Two main reasons against a completely idiographic analyses of personal goals are given: (1) it is difficult to comparatively analyze the characteristics of different goals in a person's goal system; (2) it is impossible to tap into the similarities or differences of goal at a group level, or in a certain social environment. The inherent link between life tasks and normative age-grated requirements that the authors envision can be hence better researched when coherent units of analysis are attached to each idiosyncratic pursuit. This mixed approach facilitates investigation of "systematic patterns [...] in which *one individual* construes and pursues his or her goals *differently* in line with the nature or content of each goals" (p. 145, Cantor & Harlow, 1994, original italics).

## Personal goals and approach-avoidance orientations

Using the personal project and the personal striving approach as a general framework, Elliot and colleagues (Elliot & Friedman, 2007; Elliot & Thrash, 2001; Elliot & Sheldon, 1997, 1998) employed an idiographic approach in the investigation of personal goals, focusing on the approach – avoidance distinction. Hence they developed the “*Personal Goal Elicitation Procedure*” – PGER, which brought as a novelty element an initial presentation of personal goals in terms of approach or avoidance, through the presented goal characteristics and featured goal examples. The authors coded personal goals in terms of approach or avoidance formulation, and correlated a predominant approach or avoidance focus with different indicators of well-being.

Elliot and Sheldon (1997) investigated personal goals in the achievement domain through a short-term longitudinal study. Participants listed and assessed their goals on several dimensions (importance, expected competence and intended effort); in the same time-frame they filled in measures of subjective well-being (life satisfaction, positive/negative affect). All measures were filled in again after four months. Personal goal data was coded for specificity, approach-avoidance distinction and representativeness. Results indicated that the approach-avoidance index for personal goal formulation was a negative predictor for all measures of subjective well-being, when alternative predictor variables were controlled for (goal importance and expectancy, goal specificity and representativeness, intended effort, fear of failure). The results of this study were replicated in another study on personal goals and physical symptoms (Elliot & Sheldon, 1998).

### 4.3 Evaluation of multidimensional approaches in the study of personal goals

Table 4.1 summarizes the theoretical and methodological tenets of the approaches on personal goals we previously detailed. While all approaches focus on the importance of personal generation of goal contents, they employ different tools, tapping into specific elements of personal goals. All methodological approaches start with the idiosyncratic generation of goal contents that are subsequently refined and self-assessed through specific instruments of each approach, which bear high levels of similarity in the investigated dimensions.

Table 4.1 Summative analysis of methodological approaches on personal goals

Conceptualizations	Proponents	Theoretical assumptions	Peculiarities of the methodological approach
Personal strivings (PS)	Emmons (1986, 1989, 1996, 1998) Emmons & King (1989)	<ul style="list-style-type: none"> <li>= "recurring objectives that characterize a person's intentional behavior" (Emmons, 1996, p. 315), reflecting "what a person is typically or characteristically trying to do" (Emmons, 1989, p. 92);</li> <li>- conceptualized in the control theory of self-regulation (Carver &amp; Scheier, 1998);</li> <li>- three main domains of goal investigation: goal content, goal orientation, and goal parameters.</li> </ul>	<ul style="list-style-type: none"> <li>-generation of PS - free-listing, after presentation of a brief definition + examples</li> <li>-appraisal of PS dimensions is done through the <i>Striving Assessment Scales</i> (18 dimensions of goals key attributes);</li> <li>-for appraisal of relations between PS, the <i>Striving Instrumentality Matrix (SIM)</i> was developed;</li> <li>-analysis of <b>goal differentiation</b>; the level of interrelations of PS in a person's current striving system;</li> <li>-<b>coding</b> of PS through the <i>Personal Striving Coding Manual</i>;</li> <li>-interest for <b>analyzing behavioral and procedural</b> steps individuals take towards PS accomplishment.</li> </ul>
Personal projects (PP)	Little (1983, 2000, 2007)	<ul style="list-style-type: none"> <li>= "extended sets of personally salient action in context" (Little, 2007, p. 25);</li> <li>-conceptualized in the personal construct theory and methodology (Kelly, 1955);</li> <li>- investigation of PP is <i>constructivist, contextual, conative, and consilient</i>.</li> </ul>	<ul style="list-style-type: none"> <li>-generation of PP - free-listing, after presentation of a brief definition + examples;</li> <li>-up to 35 dimensions in PP appraisal can be used, grouped in five major theoretical factors: <b>meaning, structure, community, efficacy</b>, and <b>stress</b>;</li> <li>-the <i>Personal Project Matrix</i> is used to guide self-assessment of <b>PP relations</b> (facilitation or conflict).</li> </ul>
Personal concerns (PC)	Klinger (1987) Klinger & Cox (2004a,b)	<ul style="list-style-type: none"> <li>= "the state of an individual between two time points, the one of becoming committed to pursuing a particular goal and the other of either attaining the goal or giving up the pursuit; [...] it constitutes a <i>time-binding process</i>" (Cox &amp; Klinger, 2004a, p. 9).</li> <li>-conceptualized as inherently linked to emotional responses, which offer evaluative feedback during goal pursuit</li> </ul>	<ul style="list-style-type: none"> <li>-instruments designed to guide self-appraisal of PC: the <i>Interview Questionnaire</i>, the <i>Motivational Structure Questionnaire (MSQ)</i>, and the <i>Personal Concerns Inventory (PCI)</i>;</li> <li>-the most complex instrument is the MSQ which: (a) focuses on identification of PC for <b>specific life domains</b>; (b) guides generation of PC through provision of different <b>action verbs</b>, saturated in different emotional valences.</li> <li>-self-assessment of generated PC is done on action oriented, but also <b>emotion focused scales</b>.</li> </ul>

Table 4.1 Summative analysis of methodological approaches on personal goals

Conceptualizations	Proponents	Theoretical assumptions	Peculiarities of the methodological approach
Life tasks (LT)	Cantor & Blanton, 1996) Cantor & Fleeson, 1994) Zirkel & Cantor, 1990)	= strategic pursuits, which exert situational, developmental and personal level; influences upon individual behavior over a period of time, reflecting the social roles individual fulfill in that time-frame -conceptualized as similar to developmental tasks	-focus on investigating: (a) LT appraisal at within subject level; (b) <b>task – context links</b> , namely how different contexts prime and sustain different LT; (c) identification of <b>task-relevant strategies</b> ; -idiographic generation and appraisal of LT is sustained by concurred assessments of: (a) <b>ideal versus actual self</b> in a specific <b>role</b> ; (b) <b>representative life situations</b> which best describe LT categories; (c) <b>plans and behaviors</b> the person attaches to the pursuit of LT.
Approach – avoidance generation of personal goals	Elliot & Friedman, 2007; Elliot & Thrash, 2001; Elliot & Sheldon, 1997, 1998	- uses theoretical elements for PP and PC -focuses on the approach – avoidance distinction in the analyzing personal goals	-development of the <i>Personal Goal Elicitation Procedure</i> – PGEI, which brought as a novelty element an initial presentation of personal goals in terms of <b>approach or avoidance</b> , through the presented goal characteristics and featured goal examples.

We next analyze strengths and limitations in existing personal goal mixed methodology, focusing on one main question to guide this analysis: **“What do we gain by using personal goals as units of analysis for human intentionality and motivation?”**

### *Strengths and applications*

1. **Idiosyncratic goal contents.** Personal goals encompass subjectively relevant contents, highly activated in the present and reflecting current concerns or pursuits of the individual. These contents can be tracked on domain-specific aspects or related to developmental task requirements. By accessing idiosyncratic goal contents of individuals, researchers can tap into: (a) personal conceptualizations of orientations for the *future*; (b) themes that give structure to the lives of individuals in the *present*; (c) *specificity levels* in goal verbal content formulation.
2. **Goal dimensions.** Each personal goal can be specified through a number of goal dimensions, which reflect goal structures and are usually self-assessed. By asking participants to appraise their goals on multiple dimensions, research studies: (a) define each goal on *complex coordinates*, which can be compared within and between individuals; (b) detect *discrepancies* or *similarities* in goal dimensional assessment, at individual but also at group level.
3. **Goal dynamics.** In a multiple goal paradigm, with individuals holding more than one goal at a time, generation of personal goals and their subsequent assessment on variable dimensions offers a more elaborate approach on ecological intentional structures. Through self-assessment of goal relations, research studies can analyze within individual differences in *facilitation* or *conflict* among goals.
4. **Personal goals and indicators of the level of individual functioning.** Analysis of personal goals can offer an initial diagnostic for an individual's ecological goal structures. Further *normative assessments* can link personal goals (contents and dimensional assessments) with indicators of individual functioning, like well-being, global self-regulation strategies, depression indicators, procrastination and so on. From this perspective, the value of personal goal generation and self-appraisal is immense, as they can link specific idiosyncratic intentional contents with more general human processes.
5. **Personal goals and developmental tasks.** Coding of personal goals on life-domains and normative developmental requirements in these domains can offer a contextualized image of tasks and life-events students perceive as relevant in a certain time-frame. General developmental tasks will be specified; therefore, further research and

interventions can use this contextual analysis of personal goals as a more valid starting point for community-based and educational-based approaches of intentionality.

### *Applications*

1. From a *counseling process* perspective, Little (2007) draws attention to the relevance of personal project elicitation in developing the problems list and constructing the case conceptualization. In applied counseling interventions, Little (2007) considers that personal projects offer high levels of information for: (a) initial assessment of “sources of meaning, structure and community in lives” (p. 70); (b) mapping of relevant idiosyncratic pursuits of individuals; (c) input on possible links with subjective well-being.
2. From a *life-domain perspective*, the dependence between the dominant social milieu of the individual and their projects’ content can be used in mapping intentional contents present in a specific context. In college students the most frequent categories for personal projects are academic and interpersonal life, while in employed adults occupational and interpersonal contents emerge. Through mapping of personal goals in learning communities where we want to plan specific psychological interventions can represent a relevant needs analysis method.

### *Limitations*

In the methodological approaches we reviewed all personal goals are expressed and self-appraised on different assessment levels. Use of self-assessment techniques sets some limitations in the appraisal of personal goals, which we next discuss.

First of all, individuals will list down only goal contents which they *verbally represent and are able to report about* (Nisbett & Wilson, 1977). Hence, generation of goals which one did not consciously formulate will be uncommon, though such contents can be relevant for the individual. We recognize the impact of this limitation on generated contents, but we believe that for goals that are not consciously represented, other methodological and also theoretical approaches are needed (for a detailed analysis on the automaticity of higher mental processes see Bargh & Ferguson, 2000; Bargh, 1996). These types of goals are not the subject of interest for the current thesis.

Second, tendencies toward providing *socially desirable* goals and *self-deception* in assessing those goals are possible sources of bias in personal goal appraisal (Ebner, 2005; Paulhus, 1991; Shedler, Mayman, & Manis, 1993). We also acknowledge these limitations, but we believe that goal contents the individual *chooses* to present and analyze are relevant for how he consciously defines his real-life strivings and orientations toward the future.

Third, the impact of *memory biases* and *contextual influences* can frame participants’ responses. School-based self-assessments activate school relevant



contents, while work-based assessments guide the individual on a work focus. Contextual cues, either objective or subjective can frame an individual's list of goals (Ebner, 2005; Schwarz, 1999; Schwarz & Strack, 1999). This is one reason why the famous New Year's Eve resolutions usually include very bold intentional pursuits. But taking this example for further analysis, when a New Year's resolution remains active and is listed by an individual as a personal goal long after the context has disappeared, its presence still gives us a lot of information on what that individual conceives as personally relevant in the present. Whenever we assess participants, there always are contextual cues influencing his/her answers and because we cannot suspend the existence of a context this does not mean that self-report measures are always inaccurate and biased.

#### 4.4 Theoretical and methodological statements of personal goals which guide our research studies

In order to analyze strengths and limitations in the analysis of personal goals, we first go back to the working definition of personal goals we use for the current segment of the thesis. Based on the analysis of existing literature on goal structures, we made four main *statements regarding human goals*: (a) behavior is directed by the pursuit of goals; (b) goals are cognitive representations of outcomes (desired or feared); (c) goals influence and are influenced by evaluations, emotions, and behaviors that are linked to goal structures, processes, and contents; (d) goals are hierarchically organized in dynamic systems of superordinate and subordinate goals. In this context, personal goals are set apart from other goal structures by their increased perceived importance or value for the individual (Austin & Vancouver, 1996). We next present several theoretical statements, which are based on the previously reviewed theoretical and methodological tenets, but select those aspects that we focus on in defining personal goals in our research.

1. **The relevance criterion of personal goals.** This relevance criterion is recurrent in all personal goal conceptualizations presented above. We must note that while some conceptualizations refer to relevance in terms of priority or importance (personal projects, life tasks), other stress their habitual or recurring character (personal strivings). In the present thesis we define the relevance dimension of personal goals through two aspects: (a) level of perceived *priority* in a given time-frame; and (b) level of *representativeness* for a life-domain.
2. **The linguistic label for personal goals.** As previously reviewed, each conceptualization of personal goals bears a different name, hence indicating that they refer to different constructs and mechanisms. We believe that these constructs are structurally and functionally similar in the minds of subjects asked to list goals in each different approach. The differentiation is only linked to linguistic labeling and to a programmatic focus on specific goal aspects (e.g. accent of goal being

salient, recursive, of current concern). Also, the Romanian language is quite scarce in nouns expressing intentionality, and it is difficult to provide such nuances in presentation of different goal concepts to participants. Hence, we opt for the *label of personal goals*, with specification of their main characteristics to participants.

3. **Goal structures versus goal striving.** Research studies of personal goals focus on goal elaboration (content focus) versus goal striving (process focus). We make now a very important differentiation, which will guide our research endeavors. In the present thesis we refer to personal goals only from a *content, structural perspective*, not from a goal pursuit one. We will analyze them from a static perspective, through assessment of *goal dimensions*, without going into the mechanics of goal striving.
4. **Contents of personal goals.** Free generated personal goals usually *reflect dominant life-domains* of the individual (school, work, family). This makes coding of contents on life-domains an important part in the analysis of personal goals. While some studies have focused on the number of goals per life-domain subjects spontaneously generate, we do not adhere to this approach. Also, we provide participants with some *general characteristics and examples of personal goals*, as the term itself might not be familiar to everybody.
5. **Level of abstractness.** In the present thesis we acknowledge that personal goals can be formulated at variable levels of specificity, from very general to behavioral definitions. In the present thesis we view them as *life domain specific* and *time-framed*. We differentiate here between “do” goals and “be” goals (Carver & Scheier, 1998; Emmons, 2003). The former have a clear action orientation, while the latter reflect general, global strivings which cannot be confined to specific actions and time-frames. “Be” goals can be better analyzed as general value orientations and they are not the subject of interest of our studies.
6. **Personal goals and self-regulation.** In light of existing research on personal goals, they are differentially linked with more domain specific and also global *indicators of emotional, cognitive, and behavioral functioning*. We are interested in further expanding this line of study, in order to further analyze self-regulation correlates of personal goals contents and dimensional assessments.
7. **Personality and personal goals.** Most of the theoretical approaches previously reviewed link personal goals with personality structures, advocating for an idiographic analysis of personality (Cantor & Blanton, 1996; Emmons, 2003; Little, 2007). We do not analyze in the current thesis personal goals from this perspective and won't

advocate neither for, nor against an idiographic approach of human personality.

#### **4.5 Development of a mixed approach in the analysis of personal goals: The Personal Goal Investigation Procedure (PGIP)**

The assessment procedure we constructed used as guidelines the theoretical and methodological underpinnings proposed by Robert Emmons (1986), Brian Little (1983, 2007), and Andrew Elliot (Elliot & Friedman, 2007). We aimed at constructing a procedure which facilitates generation of a more complex pool of personal goals and then the idiosyncratic selection of the most self-relevant and representative goals from this pool. We called the procedure the *Personal Goal Investigation Procedure (PGIP)*.

The initial aims in the construction of this procedure were:

1. Specification of a definition for personal goals in clear operational terms, with adequate ecological validity for participants, so that participants have a clear understanding regarding what a personal goal refers to;
2. Decision regarding use of a free-listing strategy for personal goals or specification of life-domains for which subjects will generate personal goals;
3. Selection of goal dimensions to be included and assessed in the procedure;
4. Decision on the method to be used for assessing between-goals relations.

In constructing this description we analyzed The Personal Goals Elicitation Procedure – PGEP (Elliot & Friedman, 2007), The Personal Projects Analysis methodology (Little, 1983, 2007; Little & Chambers, 2004), the life tasks methodology (Cantor and Blanton, 1996) and The Three Personal Goals besides Exercising Procedure (Riediger, 2001; Riediger & Freund, 2006).

Based on the analysis of the above presented methods, we decided that the presentation would include: (1) a brief definition of the concept of personal goals; (2) examples of possible personal goals; (3) general, relevant characteristics of personal goals.

The initial formulation of the personal goal definition and general characteristics were first analyzed by three psychologists, specialists in motivational psychology. The resulting presentation was discussed with a group of students from different faculties (N = 45), to verify whether terms are adequately understood and operational in providing the necessary information in guiding the comprehension of the concept.

### 4.5.1 Pilot study

In order to approach the first two aims in more depth, we conducted a pilot study on 31 subjects, first-year students at a large university in Cluj-Napoca, Romania. Assessment was done in group, in the classrooms, before class. Participation was voluntary.

We provided them with a brief description and characteristics of personal goals, which we previously refined, as presented above. We requested participants to list eight personal goals, which they consider as representative for their strivings in the next six months. We reinforced the confidentiality of their responses and encouraged them to be honest and open when listing the goals. Application of the procedure lasted approximately 35 minutes. All participants reported to have understood the instructions.

Two independent coders conducted a thematic analysis on life domains of the goals participants generated; a total of 239 goals were coded. Interrater reliability was satisfactory (Cohen's  $k = .87$ ). The main life domains that emerged from the personal goals were: school/education (34%), professional development (18%), friends (12%), partnership (9%), family (8%), leisure (7%), appearance (6%), financial situation (3%), and physical health (3%). A number of 14 goals could not be included in any life-domain category, and thus were classified as non-specific/other (6% of the total goal pool). Figure 4.1 summarizes the proportion of these life domains.

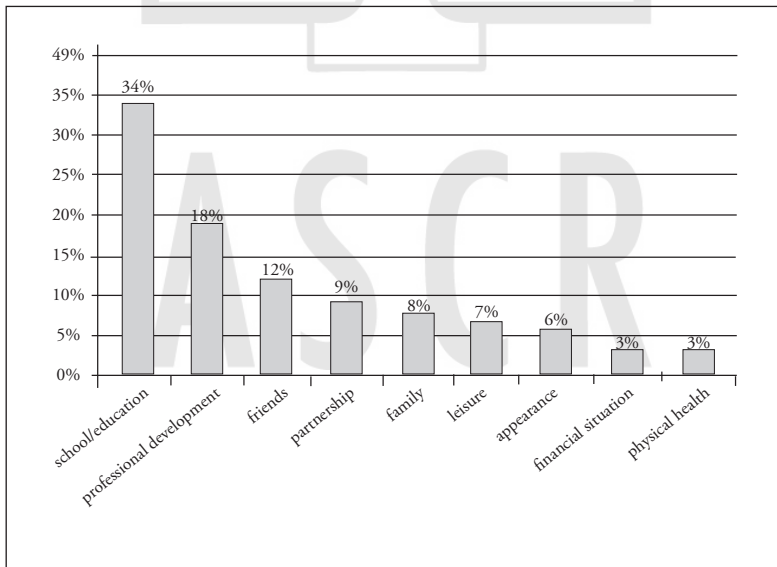


Figure 4.1 Life domains of personal goals in pilot study

After we conducted the pilot study we reanalyzed the second aim in the construction of the procedure, namely the issue of using free-listing of personal goals regardless of life-domain, or selection of a number of domains for which subjects would list goals. In the Personal Projects Analysis methodology – PPA (Little, 2007) and the Personal Goals Elicitation Procedure – PGEP (Elliot & Friedman, 2007), participants list personal goals with no life-domain restraints. The computerized version of the PPA offers the possibility that subjects integrate each goal they had listed in one life domain, after having listed it. Recent studies using personal goals methodology have opted for asking participants to elicit a more limited number of goals, in order to focus the individual on salient goal contents in specific life-domains (Lawton, Moss, Winter, & Hoffman, 2002; Riediger, 2001). In order to stimulate the generation of more domain-specific pursuits, we opted for specifying the life-domains for which participants would list goals.

#### ***4.5.2 Selection of life-domains for the PGIP***

Selection of the life domains for personal goals in the PGIP was conducted on two grounds: (1) theoretical tenets regarding developmental tasks in late adolescence and the transition to adulthood; and (2) dominant life-domains in the pilot study.

We aimed at analyzing personal goal structures at three critical points in the educational development in the transition to adulthood: final year in high-school (12<sup>th</sup> grade), first year in university, and last year in university. Analysis of normative developmental tasks relevant for late adolescence and early adulthood guided us in choosing life-domains which are of main importance in this period of time (Dreher & Oerter, 1986; Havinghurst, 1982). Also, we took into account the theoretical tenets of emerging adulthood (Arnett, 2002), which regards full-time involvement in educational activities after graduation from high-school (e.g. going to college) as having an immense impact on individuals' conceptualization of significant life-event and plans for the future. Arnett (2004) brings forward the developmental differences between the "classical" young adult and the emerging adult of today. The latter is mainly defined through identity explorations, instability, self-focus, feeling in-between, and gradually generating multiple possibilities of self-development.

Analysis of dominant life domains in the pilot study indicated *school/education* as the most frequent life-domain for the goals participants listed, followed by *professional development*. The prevalence of these two themes in the goals students list is in line with normative developmental tenets of the types of tasks relevant for this period in ontogenetic development. Hence, we chose them as two domains for the enriched procedure. The other life-domains from the pilot study did not have such heightened representation and for delimiting a third life domain, we took into account the domains of partnership, family, friends and leisure, which have similar structural elements. We labeled this global domain of individual functioning as *personal life*. We defined it as referring to goals the

subject pursues in the relations with friends and family. Thus we included friends, family, and leisure domains in a more global domain counterpoised to school and professional development.

For each domain we detailed a brief definition, presented in terms of goal pursuit, in order to once again activate intentional goal structures subjects hold. In each domain participants would list four different goals. We opted for this number of goals to maintain an adequate time-frame for filling in the procedure.

4

#### *4.5.3 Selection of goal dimensions for the PGIP*

In order to decide the selection of goal dimensions on which individuals assessed their personally salient goals, we first analyzed the methodological tenets of personal goals, in terms of both advantages and limitations. As each approach proposed an initial large number of dimensions, we chose to use in our research only a reduced number of dimensions, which we believed to be more relevant for our target groups and types of goals.

Though it would be desirable from a researcher's perspective to ask subjects to assess their goals on all possible dimensions, we believe it is an energy-consuming and costly process, because: (1) some dimensions might not be relevant for some goals; (2) some subjects might not represent their goals on so many dimensions, or don't even know what some dimensions refer to; (3) assessment on many dimensions of many goals can tire and bore participants and disengagement from the task due to reduced interest is a probable outcome.

In order to prevent such possible effects, we refined the procedure in the following manner. After the initial listing of goals, participants were asked to select from these goals, for each domain, one goal that is the most representative and important for them in the next six months. This one goal per domain was then assessed on several dimensions. **We believe that the most relevant and representative personal goal for a domain is a good indicator for how the individual cognitively represents the domain from a goal perspective. Namely, it indicates what he considers as most salient when he projects intentionality on outcomes or processes relating to that domain.** This is especially relevant as the goal is self-listed and self-selected on the given grounds. Hence, during the studies we conducted using this procedure we used the goal per domain dimensional and relational ratings as an indicator of goal representations in that life-domain. This technique is frequently used in behavioral interviewing and assessment, where initial diagnosis on a problem is done by eliciting the most representative behavior for the problem, and then conducting functional analysis on that specific behavior. Going further with this comparison, we do not affirm that a goal equals a life domain, but as with the representative behavior, it is highly diagnostic for that domain, on a primary analysis.

For the *PGIP* we selected the following goal dimensions to be included in the assessment: perceived difficulty, perceived novelty, resource allocation, performance orientation, mastery orientation. The first two dimensions reflect structural goal characteristics, while the next three refer to process relevant

aspects, with a clear focus on achievement orientations – mastery (ability and knowledge development focus) and performance (self/other comparisons). In order to establish a clear basis for the subsequent assessment, we defined each dimension in the form of a question, in order to facilitate active processing of the dimension.

**Table 4.2 Goal dimensions items**

<b>Goal dimension</b>	<b>Definition item</b>
Difficulty	How hard is it for you to achieve this goal?
Novelty	How different is this goal compared to other goals that you have previously pursued?
Procedural involvement	How much time, energy and resources do you allocate to pursuing this goal?
Self/others comparisons	Do you compare yourself with others (colleagues, friends, family) when pursuing this goal?
Ability and knowledge development	Do you improve your abilities and knowledge through the pursuit of this goal?

Assessment of each goal dimension was conducted on a six-point Likert scale from 1 to 6, with the minimum – 1 and maximum – 6 marked by a brief statement regarding the meaning of that extreme, as can be seen in Table 4.3. In this manner we provided participants, on each dimension, with specific evaluative anchors for the meaning of the values on the Likert scale.

**Table 4.3 Example of Likert scale goal dimensions assessment**

Very high difficulty	6	5	4	3	2	1	Very low difficulty
Very high novelty	6	5	4	3	2	1	Very low novelty

We chose the above mentioned dimensions as we were interested in how difficult and novel individuals appraise their representative personal goals in the three life-domains. The level of involvement, focus on social comparisons and/or ability, and knowledge development were used to analyze different within and between individual patterns of performance versus mastery orientation and perceived procedural involvement. As we also employed a general measure of achievement goals orientation, we wanted to see whether assessments on specific goal contents reflect more general academic goal orientations.

#### 4.5.4 Analysis of inter-goal relations

From a multiple goal perspective, the goals individuals pursue at a certain time in their development are defined by relations of facilitation and conflict (Emmons, 1992; Little, 1983; Riediger & Freund, 2006). We constructed a measure for goal relations in order to analyze the dynamics of goals participants pre-selected as being most representative for each of the three life-domains. In constructing this measure we first analyzed different methodological approaches in the assessment of goal relations.

In the pilot study we tested the Striving Instrumentality Matrix - SIM (Emmons, 1986). This approach relies on the existence of a bilateral relation between two goals, which is not necessarily symmetrical. For instance the relation between Goal A and Goal B has a value of high facilitation, while the relation between Goal B and Goal A can have a value of low facilitation. The existence of a bilateral determination between two goals, which is not always identical and can be thoroughly self-assessed (Riediger & Freund, 2006) is a very interesting idea, which would provide more information on goal relations.

Of the 48 participants in our pilot study only six understood this differential aspect, while all others reported to not having grasped how the relations between two goals can be different depending on which goal is taken as a reference point. Hence the majority of our participants reported identical relations between different Goal1-Goal2 and Goal 2-Goal 1 pairs. Even when we took the pairs of goals from the tabular standard presentation of the SIM and phrased each interaction in words, they still did not perceive the any differences in relations according to differential reference points and reported that the activity is repetitive and time-consuming.

Hence, we opted for a more succinct manner of assessing goal relations, namely the classic approach of reporting goal interactions on a facilitation/conflict scale, as presented in Table 4.4. This approach conceptualizes goal facilitation and conflict as mutually exclusive opposites (Riediger, 2007) and represents the most frequently used method of analyzing goal relations from a personal goals perspective (Kehr, 2003; Sheldon & Kasser, 1995). We must note here that we believe in Riediger's (2007) statement that relations between two goals can be defined *both* in terms of facilitation and conflict, depending on which goal is taken as criterion. Unfortunately, this conceptualization did not work in the sample of Romanian students on which we tested this procedure; perhaps their abilities to analyze personal goals through this lens were not adequately developed. Though it is not the purpose of this thesis, we believe that further investigation of the metacognitions individuals hold when analyzing their goals (on a micro-level) and on cultural specific determinants of perceived intentionality and locus of control (on a macro-level), could provide extensive information on global intentional processes.

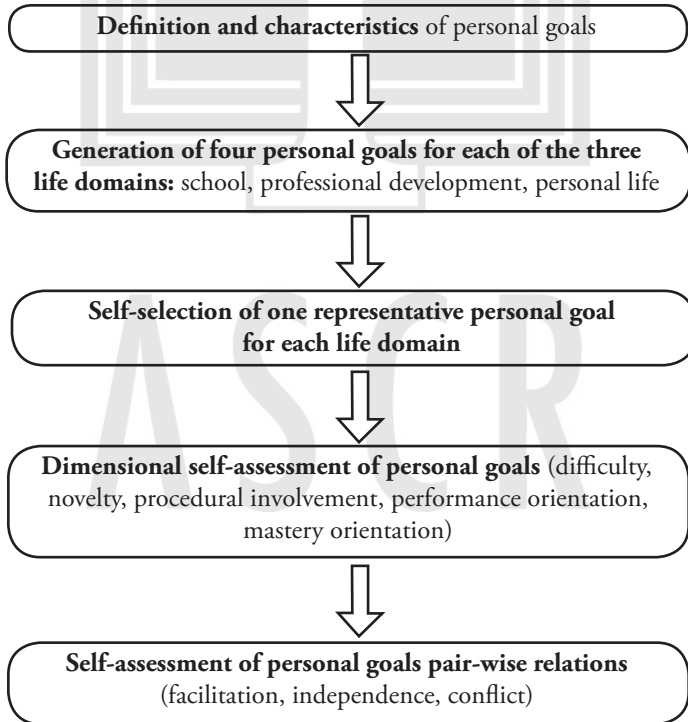


**Table 4.4 Assessment scale for goal relations**

-3	-2	-1	0	+1	+2	+3
High conflict	Medium conflict	Low conflict	No relations	Low facilitation	Medium facilitation	High facilitation

For the assessment of goal relations we settled upon, after visual presentation of the scale, we briefly explained the meaning of facilitation and conflict. For facilitation we used the following explanation: “Goals are in relations of reciprocal facilitation when the pursuit of one goal helps the pursuit and attainment of the other goal. For such relations you will give the value of +1, +2 or +3, depending on how much you consider that they help each other.” For conflict we used the following explanation: “Goals are in relations of conflict when the pursuit of one goal hinders the pursuit and attainment of the other goal. For such relations you will give the value of -1, -2 or -3, depending on how strong you consider that they get in each other’s the way”. Subsequently, participants were asked to evaluate the relations between each pair of goals.

In the final form, the *PGIP* was organized on the following process:



**Figure 4.2 Content and process description of the PGIP**



## CHAPTER 5



## PERSONAL GOALS IN THE TRANSITION TO ADULTHOOD



The present *exploratory studies* on personal goals aim at mapping specifications and interactions of the most relevant self-reported goals adulthood on three life domains: education/school, professional development, and personal life. We investigated personal goal dimensions of students in the transition to adulthood, at three critical points in time in academic development: final year in high-school, first year in university, and final year in university. We chose these three moments because we believe that they reflect to a greater extent a deliberative approach on the future (Gollwitzer, 1996), as they represent end or start points in a cycle of educational development. From a normative perspective, in these critical points of students' educational development, projection of intentionality regarding future development is more salient, and decisions to be made appear as more self-relevant. Entering or exiting an educational cycle requires reconsideration and perhaps also redefinition of personal goals. This is done on domains that are relevant in the educational and social contexts students have just entered (for the first year in university) or prepare to enter (university or work-life for final-year high-school students, and work-life for university seniors).

### **5.1 STUDY 3 Personal goal dimensions and relations in the transition to adulthood**

The present study's aim is twofold. Firstly, we aim at mapping *within subject* patterns of representative PG in the three life domains (Study 3a). Secondly, we analyze *between subject* differences on domain-specific dimensional assessment which can be due to gender, educational level, and previous work experience (Study 3b).

In the appraisal of personal goals we employed the multidimensional approach that was previously detailed.

*Participants in the exploratory studies**Recruitment*

Participants were recruited from six educational institutions, 3 high-schools and 3 universities, from Cluj-Napoca and Arad, Romania. All participants entered the study on a voluntary basis, the study being presented as a research on how students learn and set goals for themselves. At the beginning of the procedure they were informed on the confidentiality of the data they provided and the mean length of completing the whole procedure.

A total of 391 participants were initially included in the series of studies on personal goals. Of the initial sample, 187 were male and 204 female.

*Age-related initial elimination criteria.* We first analyzed data regarding the age of participants, and decided to eliminate data from subjects over the age of 29. We took this decision on three grounds: (1) to maintain the biological age of subjects representative for the mean age of final-year university students in Romania (National Plan of Development for Romania 2007-2011; State of the Romanian National Educational System for 2007); (2) to maintain an adequate age-wise distribution on age in the final-year of university subsample; (3) to remain in-line with theoretical tenets regarding changes in young adulthood and emerging adulthood (Arnett, 2002, 2004; Havinghurst, 1982). Thus we eliminated from the initial data-base a number of 13 subjects with ages ranging from 30 to 52 years. Of these 11 were females and 2 males, 10 were students in Psychology at the University of West, Arad and 3 were students at the Polytechnics University in Cluj-Napoca. All were enrolled in the final year of study.

*Management of missing data.* From the remaining data-base of 378 subjects we eliminated data for 18 subjects, which had not filled in all the questionnaires or had not correctly or fully filled them in.

*Socio-demographic characteristics.* Subject data will next be analyzed for the sample of 360 subjects ranging in age from 16 to 29 years. We first looked at the age of participants, as depicted in Table 5.1.

**Table 5.1 Socio-demographic sample characteristics for personal goal studies**

	12 <sup>th</sup> Grade	1 <sup>st</sup> Year university	Final year in university
<i>n</i>	106	119	135
% of Total N	29.4 %	33.1 %	37.5 %
Age (in years)			
<i>M</i>	17.98	19.09	22.72
<i>SD</i>	.41	.50	1.50
Gender			
Male	57 (15.8 %)	41 (11.4 %)	98 (27.2 %)
Female	49 (13.6 %)	78 (21.7 %)	37 (10.3 %)

*Year of study.* Global data on subjects' year of study are presented in Table 5.1. As we mentioned before, reorganization of university studies according to the Bologna Declaration has determined a reduction of undergraduate years of study in Romania. While most faculties have reduced their undergraduate programs to three years, some remained with a four or a five year length of study programs. As we wanted to include different lengths of study patterns, of the 135 subjects in the final year of study we included in the research, 41 were enrolled in the third year, 33 were in the fourth year and 61 were in the fifth year. We detailed main demographic characteristics for students in the final year of study in Table 5.2.

**Table 5.2 Socio-demographic sample characteristics for students in the final study year at university**

	Global analysis	Analysis on final study year		
		3 <sup>rd</sup> year of study	4 <sup>th</sup> year of study	5 <sup>th</sup> year of study
n	135	41	33	61
% of Total N	37.5 %	11.4 %	9.2 %	16.9 %
Age (in years)				
<i>M</i>	22.72	22.07	22.48	23.28
SD	1.50	1.99	1.17	1.01
Gender				
Male <i>n</i>	98	19	29	50
Female <i>n</i>	37	22	4	11

*Gender.* Of the 360 subjects, 196 were males and 164 females. Details of gender and educational level were presented in Table 5.1 and Table 5.2.

*Specifics of educational institutions.* In Table 5.3 we succinctly present the specifics of educational lines where participants studied.

### *Overview of the study*

The logics of personal goal multidimensional assessment relies, as previously debated, on generation of individually relevant intentional structures and then analysis of those structures on multiple normative dimensions. The first segment is inherently personal, in that it encourages the generation of individually relevant goals. The second segment applies a common matrix of analysis for these contents, which facilitates comparisons within subjects on multiple goals and between subjects on multiple life domains.

We constructed the Personal Goal Appraisal Procedure (PGAP) in order to have more control over the complexity of individually generated goals. As mentioned before, two goal "trimming" stages were applied: (1) a more general

**Table 5.3** Specifics of educational profiles of institutions

	n	% of Total N
Final year High-school		
Theoretical high-schools	106	29.4 %
First year University		
Faculty of Mathematics	45	12.5 %
Faculty of European Studies	15	4.2 %
Faculty of Geography	39	10.8 %
Faculty of Psycho-pedagogy	20	5.6 %
Final year University		
Faculty of Constructions	94	26.1 %
Faculty of Economics	30	8.3 %
Faculty of Psychology, Arad	11	3.1 %

stage, in which we asked subjects to generate goals relevant for them in the near future (6 months) regarding three life domains – school/education, professional development, and personal life; and (2) a more specific, choice oriented stage, in which participants had to select from the initially generated four goals for each life domain, one most representative goal. Hence, goal representativeness was based on personal selection, and for further analysis we consider the chosen goal and its appraisals as being representative of the life-domain that it reflects. Participants filled in the PGAP in a group session, in their classrooms.

The appraisals of each goal on the five dimensions, offered input on goal representations and goal relations and will further permit within subject and between subjects analyses. We want to point out that the current study is an inherently exploratory one, and we do not intend to make extrapolations for entire populations. We rather see it as a “snapshot” of individuals in the transition to adulthood, in periods of academic development which, from a normative perspective, are of critical importance, as they encompass decisions that can change the course of a life, for good or for worse.

The present study’s aim is twofold. First, we aim at mapping *within subject* patterns of representative personal goals in the three life domains – education/school, professional development and personal life (Study 3a). Second, we want to check for *between subjects* differences on domain-specific dimensional assessment which can be due to gender, educational level, and previous work experience (Study 3b).

**Study 3a.** For the first segment of the study – mapping *within subject* patterns of representative personal goals in the three life domains – the research questions guiding our investigations were:

- a) There are distinctive patterns of within individual goal dimensional assessments for each of the three educational levels.



- b) There are within person distinctive patterns of goal relations – facilitation versus conflict for each of the three educational levels.

**Study 3b.** For the second segment of the study – verifying for *between subjects* differences on domain-specific dimensional assessment which can be due to gender, educational level, and previous work experience – the research objectives guiding our investigations were:

*Objective 1 – Investigation of educational level and previous work experiences differences in goal dimensional assessments*

H1. (bidirectional) The perceived difficulty and novelty of the professional development goal and school goal is influenced by students' educational level and their previous work experience.

H2. (bidirectional) Students' previous work experience influences self-others comparisons and knowledge/ability development focus for the school and professional development goal.

*Objective 2 – Investigation of gender differences in goal dimensional assessments*

H1. (bidirectional) There are gender differences in the procedural involvement and ability/knowledge development focus for the *school goal, professional development goal, and personal life*.

H2. (bidirectional) There are gender differences in self-other comparison focus in *the school goal, professional development goal, and personal life*.

### **5.1.1 STUDY 3a. Within subject patterns of PG assessments**

Within subject variations in dimensional goal assessments for each of the three educational levels can offer a clearer image of how students construct their self-chosen representative goals regarding school, professional development, and personal life. Studies on personal goals rarely focus on within individual patterns, rather opting for comparisons between individual goal representations at different points in time (longitudinal studies, tapping changes in goal dimensions as the individual ages – Nurmi et al., 1997; Salmela-Aro et al., 2007) or on goal structures of individuals at different points in ontogenetic development (cross-sectional studies, on differences between young adults and older adults, adolescent versus adults – Baltes et al., 2004; Riediger & Freund, 2006). Longitudinal studies focus on how changes in normative demands influence goal contents and goal salience, while cross-sectional studies usually concentrate on the differential management of resources related to goal structures at different ages.

In tapping within-individual dimensional assessments of personal goals we aimed at analyzing possible differences in how students appraise their representative goals and goal interactions in the three life domains. Theoretical approaches on individual development sustain that as individuals advance in life, with a growing life-experience on more complex life-domains, the differentiation of salient personal pursuits is clearer. In our studies all participants were full-time students; hence an important life-domain was represented by the educational

domain, while experiences in the work domain and personal life could be less structured and unequal. With these observations in mind, charting goal characteristics for each educational level is of great use for prepare a contextualized design of applied interventions on development of active life skills in high-school and university students.

### ***5.1.1.1 Aims of study and methods***

In this study we aim at mapping *within subject* patterns of representative personal goals in the three life domains – education/school, professional development, and personal life.

The research questions guiding our investigations were:

- c) There are distinctive patterns of within individual goal dimensional assessments for each of the three educational levels.
- d) There are within person distinctive patterns of goal relations – facilitation versus conflict for each of the three educational levels.

### ***5.1.1.2 Results***

#### *Descriptive statistics*

Figures 5.1, 5.2, and 5.3 detail the dimensional goal assessments, separately for final year high-school students, first year university students, and last year university students.

As we mentioned before, assessment of goal relations was done on a seven-point scale, ranging from  $-3$  (maximum conflict) to  $+3$  (maximum facilitation). Following the recommendations of Riediger (2007), in order to aid statistical analysis of data we recoded the values on a scale from 1, which was equaled with  $-3$ , to 7, which was equaled with  $+3$ . Hence higher values indicate increased facilitation between goals. In Figure 5.4 we summarize the relevant descriptive data for relations between goals, organized for the three educational level groups. We coded with S1S2 the relation between the school goal and the professional development goal, with S2S3 the relation between the professional development goal and the personal life goal and with S1S3 the relation between the school goal and the personal life goal.

#### *Inferential analyses*

##### *Within subject differences in the self-assessment of goal dimensions*

In order to analyze within subject differences in the evaluation of goal dimensions for the three life-domain relevant goals, we computed repeated-measures ANOVA for each dimension, with life-domain as within

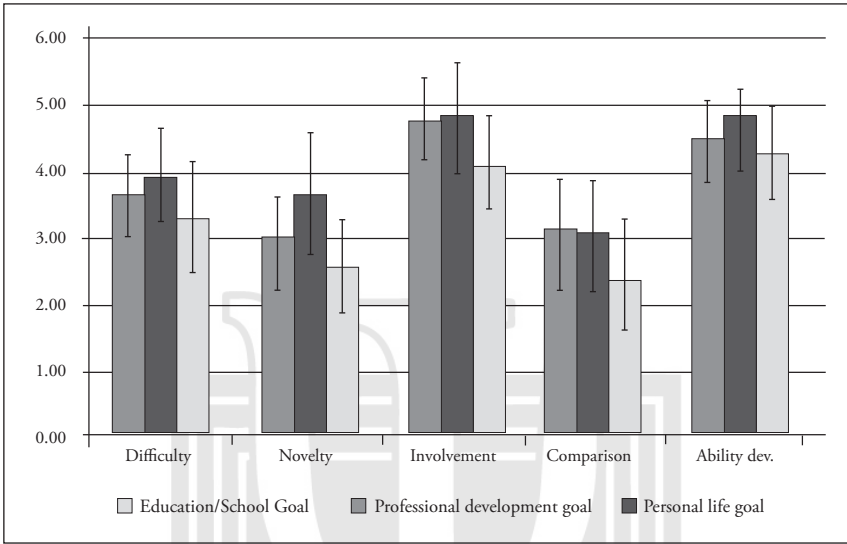


Figure 5.1 Personal goal dimensional appraisals in final year high-school students

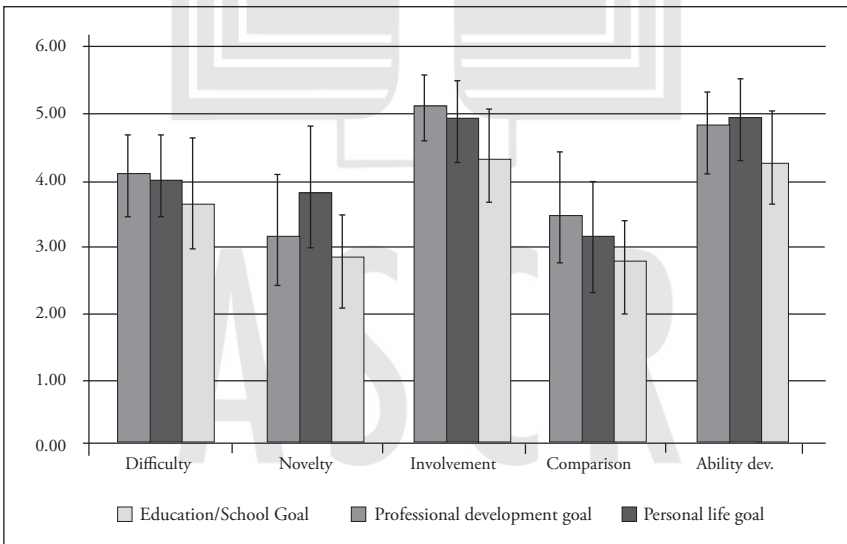
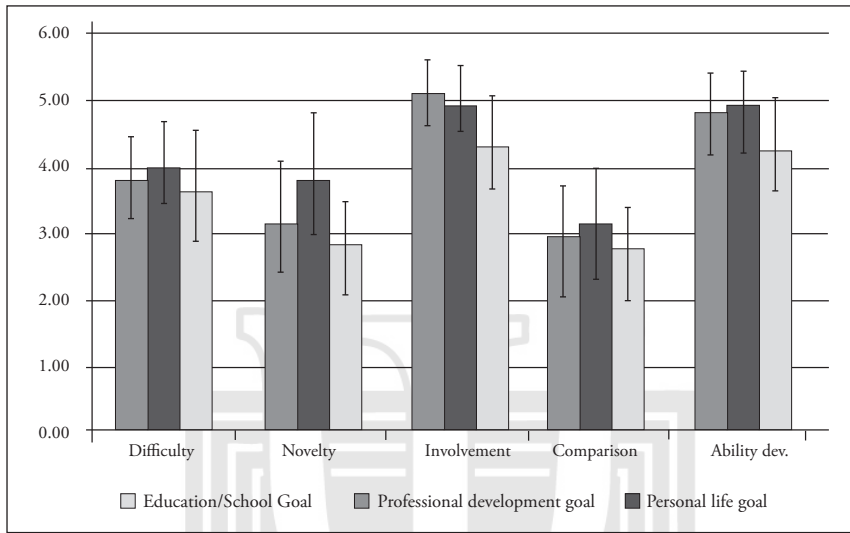


Figure 5.2 Personal goal dimensional appraisals in first year university students

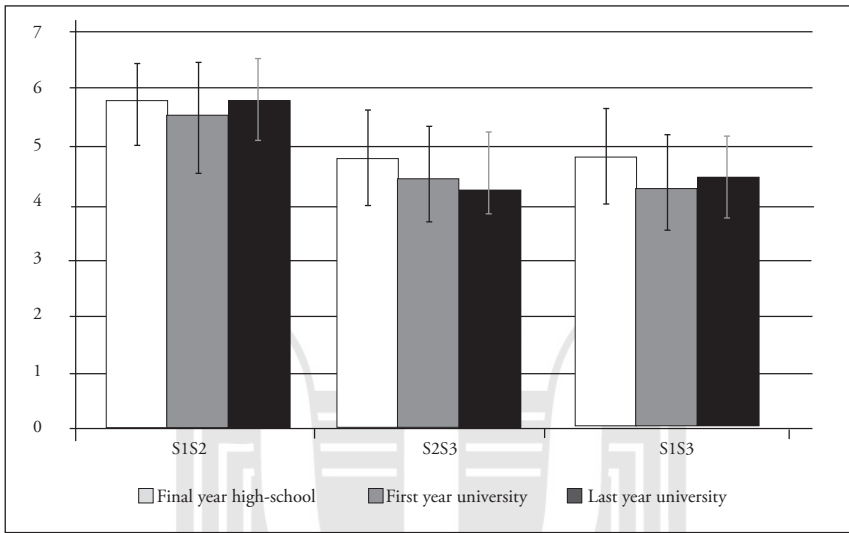


**Figure 5.3 Personal goal dimensional appraisals in final year university students**

subject variable (education, professional development, and personal life). The repeated-measures ANOVAs were conducted separately for the three educational levels. We used Bonferroni tests to analyze significant mean difference between assessments of one goal dimension on the three different goals, employing the pair-wise comparisons (Compare Main Effects option in the repeated-measures ANOVA menu).

*Perceived difficulty of life-domain goals.* Repeated-measures ANOVAs conducted separately for the three education-level groups showed that the effect of this within-subject factor was significant for final year high-school students,  $F(2, 105) = 5.97, p < .005, \eta^2 = .054$ ) and first year university students,  $F(2, 118) = 9.11, p < .001, \eta^2 = .072$ ). High-school students evaluated the professional development goal as significantly more difficult ( $M = 3.95$ ) than the personal life goal ( $M = 3.35, p < .01$ ). Bonferroni tests indicated a similar pattern for first year students, with the personal life goal ( $M = 3.45$ ) appreciated as significantly less difficult than the school ( $M = 4.08, p = .001$ ) or professional development goal ( $M = 4.00, p < .01$ ). Perceived difficulty of goals in the three life domains did not exert a significant effect in final year university students,  $F(2, 134) = 2.16, ns, \eta^2 = .016$ ).

*Novelty of life-domain goal.* The novelty dimension of goals yielded a significant within-subject effect in all three groups: high-school students,  $F(2, 105) = 16.30, p < .005, \eta^2 = .134$ ); first year university students,  $F(2, 118) = 22.34, p < .001, \eta^2 = .159$ ), and final year university students,  $F(2, 134) = 15.84, p < .001, \eta^2 = .106$ ). High-school students tended to evaluate the professional development goal ( $M = 3.64$ ) as being significantly more novel than the school goal ( $M = 2.98, p < .005$ ) or the personal life goal ( $M = 2.58, p < .001$ ). A similar pattern emerged for first-year students, with the professional development goal



**Figure 5.4** Personal goal relations on the three educational levels

being assessed as more new ( $M = 3.85$ ) than the school ( $M = 3.17, p < .005$ ) or the personal life one ( $M = 2.49, p < .005$ ). Last year students in the university also found the professional development goal ( $M = 3.83$ ) as having a higher novelty factor than the school ( $M = 3.17, p < .001$ ) and personal life goal ( $M = 2.88, p < .001$ ).

*Procedural involvement in life-domain goal.* Repeated-measures ANOVAs indicated that within subjects procedural involvement was significantly different in the pursuit of the three domain-specific goals. This was so for all three groups: high-school students,  $F(2, 105) = 10.21, p < .001, \eta^2 = .089$ ; first year university students,  $F(2, 118) = 21.12, p < .001, \eta^2 = .152$  and final year university students,  $F(2, 134) = 15.31, p < .001, \eta^2 = .103$ . For all three groups, Bonferroni tests indicated the same pattern of mean differences between domains. The personal life goal was assessed as being associated with significantly less involvement compared to the school goal or the professional development goal, pair-wise comparisons being significant at  $p < .005$ . We found no significant mean differences for procedural involvement between the school and professional development goal.

*Self-others comparisons in life-domain goal.* The repeated-measures ANOVAs conducted separately for the three education-level groups showed that the effect of this within-subject factor was significant for final year high-school students,  $F(2, 105) = 9.39, p < .001, \eta^2 = .082$ ; first year university students,  $F(2, 118) = 14.72, p < .001, \eta^2 = .111$  and final year university students,  $F(2, 134) = 6.17, p < .01, \eta^2 = .044$ . The mean differences between life-domain on this comparison dimension were very interesting, as revealed by Bonferroni tests. All educational groups report the least comparison in personal life, as opposed to school or professional development. High-school students consider their personal

life goal ( $M = 2.50$ ) as involving significantly less comparison with others than their school ( $M = 3.09, p < .001$ ) or professional development goal ( $M = 3.05, p < .005$ ), which have very similar mean values on group level. On a different note, first-year university students assess the school goal ( $M = 3.63$ ) as involving the most comparison with others, as opposed to the professional development ( $M = 3.24, p < .01$ ) or the personal life goal ( $M = 2.78, p < .001$ ). In final-year university students Bonferroni tests revealed significant mean differences only between the professional development goal ( $M = 3.24$ ) and personal life one ( $M = 2.76, p < .005$ ), the latter being assessed as involving little comparisons with others.

*Ability and knowledge development focus of life-domain goal.* Repeated-measures ANOVAs conducted separately for the three education-level groups revealed that the effect of this within-subject factor was significant for first year university students,  $F(2, 118) = 12.13, p < .001, \eta^2 = .093$ ) and final year university students,  $F(2, 134) = 7.53, p < .005, \eta^2 = .053$ ). Bonferroni tests indicated the same pattern of mean differences between domains – the personal life goal was assessed as being associated with significantly less orientation toward ability development, compared to the school goal or the professional development goal, pair-wise comparisons being significant at  $p < .01$ . We found no significant mean differences for a goal mastery orientation between the school and professional development goal. No significant effect was found for final year high-school students,  $F(2, 105) = 2.68, ns, \eta^2 = .054$ ), hence indicating that high-school students have a less differentiated mastery orientation in goal specific assessment.

### *Goal relations – facilitation and conflict*

We investigated the dynamics of goal relations by computing repeated-measures ANOVAs with the three goal relations as within subject variables. The repeated-measures ANOVAs were conducted separately for the three educational levels. We used Bonferroni tests to analyze significant mean difference between pairs of goal relations (Sava, 2004), employing the pair-wise comparisons measure (Compare Main Effects option in the repeated-measures ANOVA menu).

*Goal relations of final-year high-school students.* For this group, repeated measures ANOVA yielded a significant within subject effect for goal relations,  $F(2, 105) = 21.48, p < .001, \eta^2 = .170$ ), indicating that students rated the relations between pairs of goals differentially. Pair-wise comparisons revealed significant mean differences between school – professional development goal relations ( $M = 5.78$ ) and professional development – personal life goals relations ( $M = 4.78, p < .001$ ) and respectively school – personal life goals relations ( $M = 4.77, p < .001$ ). Relations between school and professional development goals were assessed as more facilitative than those in the other two pairs of goals presented above, indicating that high-school students envision the self-selected school and professional development priorities as aiding each other.

*Goal relations of first-year university students.* Repeated measures ANOVA revealed a significant within subject effect for goal relations,  $F(2, 118) = 25.03, p < .001, \eta^2 = .175$ ). This indicates that first-year university students perceived dissimilar types of relations between different pairs of goals. Pair-wise comparisons revealed similar patterns to those of final year high-school students. School – professional development goal relations ( $M = 5.52$ ) were significantly more facilitative than professional development – personal life goal relations ( $M = 4.52, p < .001$ ) and respectively school – personal life goal relations ( $M = 4.29, p < .001$ ).

*Goal relations of final-year university students.* Repeated measures ANOVA revealed a significant within subject effect for goal relations,  $F(2, 134) = 47.37, p < .001, \eta^2 = .261$ ). It seems that final-year university students perceived distinctive types of relations between different pairs of goals. Pair-wise comparisons revealed similar patterns to the other two educational level groups. School – professional development goal relations ( $M = 5.81$ ) were appraised as significantly more facilitative than professional development – personal life goal relations ( $M = 4.43, p < .001$ ) and respectively school – personal life goal relations ( $M = 4.42, p < .001$ ).

Participants at all three educational points perceived heightened facilitation between the representative school goal and the professional development goal, more so than in the other two pairs of goal relations.

### 5.1.1.3 Discussion

#### *Within subject dynamics of goal dimensions*

From a goal structure perspective this study pointed out that for each of the three educational levels students generally tended to assess differentially their goals on most of the dimensions. This indicates differential perception of each life domain and sustains specific within individual patterns of personal goals for the three life-domains. In Table 5.4 we summarized the within-subject differences in goal dimensional assessment, for each educational level taken separately.

**Table 5.4 Summary of within-subject differences in goal dimensional appraisal for each educational level**

Goal dimension	Final year high-school	First-year university	Last-year university
Difficulty	<i>Professional development</i> goal significantly more difficult than other goals.	<i>Professional development</i> goal significantly more difficult than other goals.	<i>Professional development</i> goal more difficult than other goals (general trend).
Novelty	<i>Professional development</i> goal significantly more novel than other goals	<i>Professional development</i> goal significantly more novel than other goals	<i>Professional development</i> goal significantly more novel than other goals

Goal dimension	Final year high-school	First-year university	Last-year university
Procedural involvement	<i>School goal and professional development goal entail significantly more procedural involvement compared to personal life goal.</i>	<i>School goal and professional development goal entail significantly more procedural involvement compared to personal life goal.</i>	<i>School goal and professional development goal entail significantly more procedural involvement compared to personal life goal.</i>
Self-others comparison focus	<i>School goal and professional development goal involve significantly more self-other comparison than the personal life goal.</i>	<i>School goal involves the highest level of self-other comparisons than the professional development goal or the personal life goal.</i>	<i>The professional development goal involves more self-other comparisons than the personal life goal.</i>
Ability and knowledge development focus	<i>School goal and professional development goal entail significantly more focus on ability and knowledge development than the personal life goal.</i>	<i>School goal and professional development goal entail significantly more focus on ability and knowledge development than the personal life goal.</i>	<i>School goal and professional development goal entail significantly more focus on ability and knowledge development than the personal life goal.</i>
Goal relations	G1-school G2-profession G3-personal life	G1G2 relations more facilitative than G1G3 and G2G3 relations.	G1G2 relations more facilitative than G1G3 and G2G3 relations

### *Similarities and differences in within individuals' patterns of dimensional goal assessments for the three educational levels*

As we can see from Table 5.4, for goal difficulty, goal novelty, and goal procedural involvement, within subject patterns in the three educational levels are similar. The professional development goal was assessed as being most difficulty and novel, compared to the school and personal life goals, by students in the last year in high-school, first year in university, and last year in university. Reported procedural involvement was higher for the school and professional development goals, compared to the personal life goal, by students in all educational levels. This indicates that from a within person perspective, patterns of within-individual appraisals of representative goals in the three life domains are very similar on these three dimensions. Representations of personal goals on the difficulty, novelty, and involvement dimensions entail higher levels of self-assessments for the professional development goal. It seems that from a personal goal perspective this life-domain is perceived by students at the three educational levels as encompassing higher salience.

For self-other comparison focus in goal pursuit, within-individual patterns revealed differences between the educational levels. Students in the last year in high-school appraised that both the school goal and the professional development goal involve higher levels of self-others comparisons, compared



to the personal life goal. In the first year of university, students evaluated the school goal as requiring the highest levels of self-others comparisons. In the last year of university, the professional development goal was attached with the most self-others comparisons. These different patterns indicate that the beginning of a new educational cycle (university) enhances the salience of self-others comparisons in the school domain, while the end of university studies focuses individuals on higher levels of comparisons regarding their professional development goal.

Normative demands shift at the end of university studies from the school domain to active insertion in the work field. The patterns we found through personal goal self-assessments mirror this domain shift for the perceived self-others comparisons involved in goal pursuits. Ability/knowledge development focus had a similar within-individuals pattern for all educational levels, with school and professional goals having attributed higher levels than the personal life goal. Hence, it appears that of these two dimensions relevant for achievement orientation, a mastery focus reflected in perceived ability/knowledge development through goal pursuit, is similar for the three educational moments. A performance focus, translated in the level of self-others comparisons involved in goal pursuit, is more sensitive to shifts in normative requirements specific for each educational level.

### *Similarities and differences in within-individual goal relations*

In assessing within-individual patterns of goal relations, we found high levels of similarities in the three educational moments, with students appraising G1G2 relations more facilitative than G1G3 and G2G3 relations. The relations between the school goal and the professional development goal were perceived as involving the most facilitation, compared to school-personal life goal relations and professional-personal life goal relations. These similar patterns that emerged for students in each of the three educational moments could be indicative of a heightened perceived facilitation between what one intends to do in school and one wants to achieve in professional life. This is an important aspect in using personal goals analysis techniques in raising awareness in students of the interdependence between school life and professional development.

The within-individual patterns of relations of the personal life goal (G3) with the other two life-domain representative goals indicate that students at the three educational points rather tend to assess that the school (G1) and professional goals (G2) are independent from the personal life goal (G3). As presented before, a value of 4 was chosen by the individual when he assessed that two goals are independent of each other. Analysis of mean values regarding G1G3 and G2G3 relations show that most students in each educational level assessed relations between these goals as being marked by independence. This could be an indicator of the fact that students at each educational level do not have coherent representations of the complex links between salient life domains and pursuits in these domains. This is an important observation from a developmental perspective, as it opens a new relevant line of research regarding changes in perceptions of goal relations among life domains, with increasing

educational and work experience. If an individual considers that his personal goals in two domains are independent of each other, for instance the goal “to get better grades” (school domain) and the goal “to make parents understand that I am not perfect” (personal life domain), it can be that cognitive structures which connect the two goals are either not developed yet, or are not activated to process these relations in more depth.

In order to take a closer look at how students perceive relations among representative goals in different salient life domains, we intend to use in future research conceptual maps in which students can visually represent how they perceive these relations. The conceptual mapping technique can be useful to further test whether and how high-school and university students comprehend interrelations among personal pursuits in different life domains.

### *Career maturity and dimensional assessments of the professional development goal*

The *professional development goal* was assessed as being more difficult and more novel compared to the school and personal life goals. This pattern was very strong for students in the last year of high-school and those in the first year of university. For the difficulty dimension it did not significantly emerge in students in the last year of university, though mean values for goal difficulty in this group indicated the same trend like in the other educational levels groups. At a global level, students in last-year in university presented a less differentiated pattern of perceived goal difficulty. The fact that the difficulty and novelty of the professional development goal involved the highest within individual ratings indicates that this specific life-domain is perceived as rather “uncharted” by students, when counterpoised against similar previous experiences. The issue of career maturity comes into question here.

Super (1990) defined career maturity as an “individual’s readiness to cope with the developmental tasks with which he or she is confronted because of his or her biological and social developments and because of society’s expectations of people who have reached that stage of development” (p. 213). As professional development goals in our study were self-generated, self-selected, and self-rated, students chose contents they perceived as being representative for their strivings in the current academic year. We believe that two aspects in goal-setting are of importance when difficulty and novelty of a goal are self-appraised: (a) previous experience with that category of goals, structured on life-domains; and (b) the extent to which a goal is predefined through external requirements (other-set goal) or it is mainly specified through personally relevant contents, not related to environmental requirements (self-set).

For the first aspect, from a structural point of view on career maturity, the higher levels of difficulty and novelty for the professional development goal could be an indicator of reduced previous experience in consciously defining and approaching goals in this domain. It seems that even when individuals self-select important and representative goal contents in this domain, they still assess it as

different on the above mentioned dimensions. This suggests reduced “exercise” in formulating and perhaps also pursuing professional development goals.

For the second aspect, while in the school/education domain the structure of goals is mostly “given” by the educational system in terms of exams, homework or required competence levels for specific areas, goals for professional development often have to be self-generated. We hypothesize that the proactive dimension in constructing relevant intentional contents for professional development is somewhat reduced for students in our sample, at all three educational points. Previous studies on goal difficulty differentiate between *context* beliefs and *capability* beliefs in defining goal difficulty, the former referring to environmental factors which influence goal perceptions and the latter focusing on self-referent evaluations which appraise the ability to pursue a goal (Austin & Vancouver, 1996; Ford, 1992). As participants in each of the educational levels reported higher procedural involvement in school and professional goals compared to personal life goals, this is an indicator of higher capability beliefs related to these two domains.

Analysis of career maturity from the perspective of personal goals can offer a more contextual specification to the concept, which in the past has been criticized because of its reduced focus on socio-cultural variables. In future research we are interested in tracking individual readiness in coping with developmental tasks in salient life domains, by using complex self-assessments of personal goals in these life domains and career maturity global measurements (e. g. Career Maturity Inventory). Through this approach we aim at finding correlates of personal goals in career maturity, which are specific for the Romanian socio-cultural dimensions.

### ***5.1.2 STUDY 3b. Between subjects educational level, previous work experience and gender influences on PG assessments<sup>5</sup>***

In this study we wanted to analyze between subjects differences on domain-specific dimensional assessments which can be influenced by gender, educational level and previous work experience. In our investigations we aimed at investigating on the one hand educational level and previous work experiences differences in goal dimensional assessments and on the other hand gender differences in goal dimensional assessments.

#### *Educational level and previous work experiences influence on goal dimensional assessments*

The three educational levels we selected for this line of research on personal goals reflect critical periods in educational development in the Romanian school system, marking the end (last year in high-school, last year in university) and respectively the beginning (first year in university) of an educational cycle. As previously mentioned, we chose to investigate personal goals of students in these educational reference points, because we believe that they reflect critical periods in personal development, from a normative perspective. This means that critical periods normatively require individuals to take more active decisions regarding their future, and project their development on coordinates referring to school, professional development and personal life. In the Romanian educational system the dynamics of transitions from one educational level to another and from education to work is very sudden, with students having to clearly opt for one educational path when choosing a university line of study, a decision often made without adequate knowledge about that line of study. As for school to work transitions, the graduation year in university theoretically represents a period of preparation for work transitions, with the work domain becoming more salient than in other educational levels. Hence, normative demands regarding examination periods or graduation exams often shape individual pursuits, which, especially for the school goals are highly saturated in contextual demands, and less self-oriented.

Previous studies mapping personal goal structures and goal dimensions have pointed out the importance of contextual affordances and limitations in shaping goal pursuits. In a 10 year longitudinal study on personal goals of emerging adults, Salmela-Aro, Aunola and Nurmi (2007) found that changes in goal contents reflected changes in developmental tasks, role transitions and life situations. A shift from education related goals to work, family and health goals was clearly detected, with exit from an educational system and entrance in the work-field indicating a high decrease in school related goals. As personal goals are considered important for the manner in which individuals represent their future development and select paths of action (Cantor et al., 1987; Nurmi, 1989,

<sup>5</sup> This study was previously published in *Studia Universitatis Babeş-Bolyai, Seria Psychologia-Paedagogia* (Negru, 2009b).

1991), comparisons of individuals at critical points of educational development can reveal useful information on developmental trajectories. In regard to this aspect, Nurmi, Salmela-Aro, and Koivisto (2002) revealed that young adults who gave high importance to work-relevant goals were more likely to find work according to their educational preparation after university graduation and were less likely to be unemployed.

As inclusion in an educational system offers a stable term of comparison, with all students at one educational level with similar curricular requirements facing the same type of normative demands, comparisons among goal structures of students at the three educational critical points can bring forward new and more specific information on personal goals. In the Romanian educational system normative demands at each of the three educational points refer to:

- (a) Last year in high-school – the Baccalaureate exam, the first complex examination high-school students face, with four subject matters from all years of high-school study included in a series of oral and written examinations, during a period of two weeks; the results of the Baccalaureate exam are an important criterion for admittance to university in Romania
- (b) First year in university – the first exam session, encompassing different types of oral and written exams (depending on the specific faculty) which assess the knowledge students acquired during the entire semester; it is a new type of examination for students, because it requires more self-regulated learning during the semester and the amount, complexity and novelty of information required for these exams are a significantly higher compared to previous school learning experiences
- (c) Last year in university – the graduation exam, which is a written and/or oral examination of knowledge acquired during the university; in most faculties students present a graduation project, which is a theoretical or applied written paper on a subject matter students find of interest – this paper is a criterion for the level of domain-specific knowledge comprehension and applicability

Given these types of normative educational demands, we were interested to see whether structural goal dimensions: goal novelty and difficulty are differentially appraised for the representative school goal. Both for the school and professional development goal, we wanted to analyze how previous work experience influences assessed goal difficulty and novelty.

Studies on educational transitions have shown that previous work experience is an important factor in how students represent and assess their goals, because as individuals gain more educational experience, relevant work experience aids them achieves an age-adequate level of career adaptability (Savickas, 2005). This is an important assumption for emerging adults, because diversification of life domains through direct work experiences is presumed to shape representations of goals and goal dimensions. Hence, we were also interested if there are differences among students in the three educational levels regarding appraised goal novelty

5 and difficulty, because of previous work experience. We asked students to list the number of months they worked and we counted as work experience not only full-time or part-time employment, but also project based work experience. As to our knowledge there are no previous studies on Romanian students using a mixed approach of personal goals, we hypothesized that there is a difference in the perceived difficulty and novelty of personal goals in the three life domains due to educational level and previous work experience, but we presented it as a bidirectional hypothesis. Developmental approaches do consider that as the individual advances in educational structures and is involved in more work-relevant experiences, the manner in which he represents personal pursuits changes, with involvement in more complex life situations influencing how he assesses and interprets these pursuits (Lerner, 2005; Savickas, 1997; Super, Savickas, & Super, 1996). In order to investigate whether there is a different direction in these changes, we focused on analyses for goal difficulty and goal novelty in the school goal and the professional development goal, which are more saturated in normative requirements in the age group included in our study.

*Self-others comparison focus or ability/knowledge development focus – differences related to previous work experience*

Self-other comparison is a key element for a performance goal orientation, while focus on ability/knowledge development is a central component of a mastery orientation. In introducing these elements of self-assessment for each representative personal goal, we aimed at tapping into how students perceive their goals on each dimension, from a goal-specific perspective. As most research studies use standard sets of goal orientations or types of goals, our approach was different, in that it focused on personally salient goal structures, verbally formulated by the individual. In this study we were interested in analyzing whether previous work experience has an effect on how students view their school and professional development goals, in terms of focus on self-others comparisons and ability/knowledge development, respectively. We chose to dwell only upon these two goals, as they are more achievement oriented than the personal life goals.

Developmental studies investigating achievement orientations of elementary school students before and after entering junior high-school, have uncovered that as students advance in the educational system, their achievement goals change from a mastery focus to a performance focus (Koller, 2000). Research on achievement orientations of personal goal in transition to adulthood is rather scarce. Hence, for our study we hypothesized that previous work experience influences how students perceive their school and professional development goals, in terms of performance versus mastery focus.

*Gender differences in achievement relevant dimensions of personal goals*

Though Pintrich and Schunk (2002) note the paucity of gender-related characteristics in research on achievement motivation, some studies did approach this topic, with mixed findings. Some researchers have uncovered gender differences related to academic goals, indicating an increased focus on competitiveness in boys compared to girls. Girls seem to set higher level goals, with a dominant mastery orientation (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Meece & Holt, 1993; Nolen, 1988; Pajares et al., 2000; Spence & Helmreich, 1983). Other studies did not reveal significant gender differences in self-set goals (Barron & Harackiewicz, 2001; Fukada, Fukada, & Hicks, 1993; Gernigon & Le Bars, 2000; Pajares, Britner, & Valiante, 2000). In reviewing both lines of research, Hyde and Durik (2005), summarized that task domain and life domain must be more carefully addressed, in order to track gender differences in the conceptualization of goal representations.

Relying on these findings, we wanted to analyze in our study possible gender differences in the self-assessment of achievement relevant personal goal dimensions: self-others comparison focus and ability/knowledge development focus. Also, as previous research has often introduced goal involvement as a dimension relevant for achievement motivation, we wanted to investigate whether ideographically generated goal contents are attributed differential involvement by girls versus boys. For each of the life-domain goals: school, professional development, and personal life, we analyzed possible gender differences for the above mentioned goal dimensions. Information on gender differences for idiographic personal goals can open new and complex lines of research, as self-assessments made on the selected dimensions stem from individual goals, not from nomothetic contents identical for all participants, but perhaps non-significant for some of them.

**5.1.2.1 Aims of study**

*Objective 1 – Investigation of educational level and previous work experiences differences in goal dimensional assessments*

H1. (bidirectional) The perceived difficulty and novelty of the professional development goal and school goal is influenced by students' educational level and their previous work experience.

H2. (bidirectional) Students' previous work experience influences self-others comparisons and knowledge/ability development focus for the school and professional development goal.

*Objective 2 – Investigation of gender differences in goal dimensional assessments*

H1. (bidirectional) There are gender differences in the procedural involvement and ability/knowledge development focus for the *school, professional development, and personal life goals*.

H2. (bidirectional) There are gender differences in self-other comparison focus in the *school, professional development, and personal life goals*.

### 5.1.2.2 Results

The descriptive statistics were already detailed in Study 3a, and therefore we will focus only on the inferential statistics, which were computed on the global sample ( $N = 360$ ). As previously mentioned, we wanted to analyze differences between subjects which can be influenced by a series of factors.

In order to assess previous work-relevant experience, we created a new variable in the SPSS data file, and coded with 0 no previous work experience, with 1 work experience on a full-time or part-time basis for less than a total of 12 months, and with 2 work experience on a full-time or part-time basis for more than a total of 12 months. Coding was done based on the demographic data participants filled in at the beginning of the procedure.

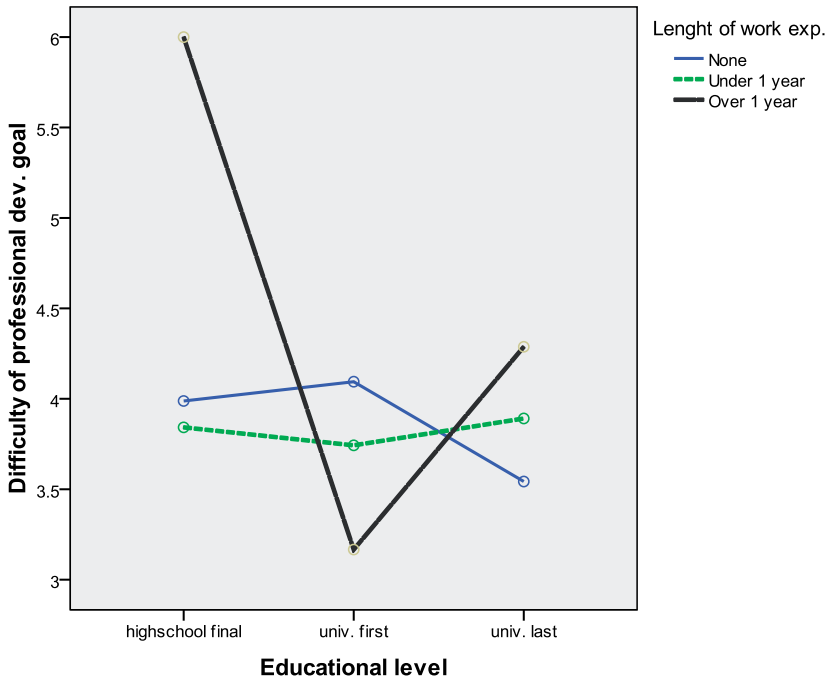
#### *Educational level and previous work experiences differences in goal dimensional assessments*

In order to analyze the impact of students' educational level and previous work experience on the appraisal of perceived difficulty and novelty of the professional development goal, we computed a Factorial ANOVA, with professional goal difficulty and novelty and dependent variables and educational level and previous work experience as independent variables.

We found a significant interaction effect for the assessed level of the professional goal's difficulty between students' educational level and their previous work experience,  $F(4, 351) = 2.29, p = .05, \eta^2 = .025$ . Figure 5.5 graphically presents this interaction effect. It seems that students appraise the difficulty of their most relevant professional development goal differentially at each educational level, depending on their previous work experience. For the difficulty of the school goal, we did not find a significant interaction effect between students' educational level and their previous work experience,  $F(4, 351) = 1.67, ns, \eta^2 = .019$ .

For professional development goal difficulty we found a marginally significant main effect of educational level,  $F(2, 351) = 2.76, p = .06, \eta^2 = .016$ , though HochbergGT2 post-hoc tests did not reveal any significant mean differences between the three educational levels (high-school final, university first and university last). For the level of novelty in the professional development goal, the main effect of educational level was not significant,  $F(2, 351) = .61, ns, \eta^2 = .003$ . For the difficulty of the school goal no significant main effects were found, neither for educational level,  $F(2, 351) = .19, ns, \eta^2 = .001$ , nor for previous work experience,  $F(2, 351) = 1.41, ns, \eta^2 = .008$ . For school goal novelty main effects of educational level and previous work experience were also not significant.





**Figure 5.5** Interaction effect of educational level and length of previous work experience on assessed difficulty of professional development goal

The main effect of work experience length on perceived difficulty of the professional development goal was not significant,  $F(2, 351) = 1.85$ ,  $ns$ ,  $\eta^2 = .010$ ; for goal novelty we also found a non-significant main effect of previous work experience,  $F(2, 351) = 1.90$ ,  $ns$ ,  $\eta^2 = .011$ .

*Self-other comparison focus or ability/knowledge development focus – differences related to previous work experience*

In order to investigate the impact of previous work experience on self-others comparisons in the pursuit of the professional development goals, we computed a Univariate ANOVA, with appraisals of self-others comparisons and ability/knowledge development respectively as dependent variable (in the professional goal and then the school goal) and previous work experience as independent variable.

For reported self-other comparisons in the professional development goal we found a significant effect of the length of previous work experience,  $F(2, 357) = 3.76$ ,  $p < .05$ ,  $\eta^2 = .021$ . HochbergGT2 post-hoc test showed that students who have been employed for more than one year reported significantly

more self-others comparison in the pursuit of their representative professional development goal ( $M = 3.60$ ) than students with reduced work experience ( $M = 2.97$ ,  $p < .05$ ). Reported self-other comparisons in the school goal were not significantly influenced by students' previous work experience,  $F(2,357) = .31$ ,  $ns$ ,  $\eta^2 = .002$ .

A differential focus on ability/knowledge development due to previous work experience did not yield significant effect, neither for the professional development goal,  $F(2,357) = 1.01$ ,  $ns$ ,  $\eta^2 = .006$ , nor for the school goal,  $F(2,357) = 2.01$ ,  $ns$ ,  $\eta^2 = .011$ .

### *Gender differences in goal dimensional assessments*

For *reported involvement* in goal pursuit we found a significant effect of gender for the professional development goal,  $t(358) = -2.59$ ,  $p = .01$ , with female students ( $M = 5.04$ ) reporting higher involvement compared to male students ( $M = 4.71$ ). For the school goal we found a marginally significant effect of gender on the reported involvement,  $t(358) = 1.70$ ,  $p = .08$ , with girls ( $M = 5.05$ ) declaring more involvement than boys ( $M = 4.85$ ). No significant gender differences were found for involvement in the personal life goal,  $t(358) = -.18$ ,  $ns$ .

For the *focus on ability and knowledge development* we found significant gender differences for the representative professional development goal,  $t(358) = -2.80$ ,  $p = .005$ . Girls reported significantly higher focus on ability and knowledge development in the pursuit of their professional goal ( $M = 5.01$ ) compared to boys ( $M = 4.76$ ). We found no significant gender differences regarding focus on ability and knowledge development for the school goal,  $t(358) = 1.46$ ,  $ns$  or the personal life goal,  $t(358) = -.06$ ,  $ns$ .

For the *focus on self-others comparisons* in goal pursuit we did not find significant gender differences for the school goal,  $t(358) = -1.01$ ,  $ns$  the professional development goal,  $t(358) = -.46$ ,  $ns$  or the personal life goal,  $t(358) = -.13$ ,  $ns$ . This indicates that the level of perceived comparison with others in the representation of representative personal goals in the three life domains is not influenced by gender.

### **5.1.2.3 Discussion**

#### *Educational level and previous work experiences differences in goal dimensional assessment*

Data analyses pointed out that students appraise the difficulty of their most relevant *professional development goal* differentially at each educational level, depending on their previous work experience. We also found a marginally significant main effect of educational level on the difficulty of the professional development goal. For the school goal we did not find any main effects or interaction effects of educational level and previous work experience, neither for

goal difficulty, nor for goal novelty. These results indicate that self-appraisals of the professional development goal are more sensitive to changes in educational level and work experience, compared to school goals. Our initial hypothesis was only partially confirmed, on the coordinates detailed above.

In the transition to adulthood, normative requirements become more salient when students approach the end or the beginning of an educational cycle. New contextual demands urge individuals to reconsider current goals and prepare engagement in others. The indicators of goal novelty and difficulty reflected how students perceive their representative and important pursuits, with the professional development goal apparently being more clearly influenced by educational level and previous work experience. This is an interesting finding, because we initially believed that school goals also reflect new and difficult challenges, in terms of complex forms of examinations students at the three educational moments will face in the near future. It seems though, that in the school domain no significant differences appear, which can be explained by educational level or previous work experience. Perhaps the school life-domain is more saturated in cognitive and behavioral routines that lead students to convey lower levels of goal novelty and difficulty, in spite of contextual demands.

As for the observed changes in professional goal difficulty explained by a joint effect of educational level and previous work experience, the interaction effect depicted in Figure 5.5 indicates that last year in high-school students with more than a year work experience perceive the difficulty of their chosen professional goal as much higher than those with reduced, or no work experience, which have very similar mean difficulty levels. In first-year students, increased work experience is associated with lower appraised difficulty levels of the professional goal, compared to those with reduced or no work experience. In last-year in university students, those with increased work experience assess their professional development goals as more difficult, compared to those with reduced or no work experience.

These differential patterns of interactions sustain that increased work experience influences appraised difficulty of the professional goal, but the direction of the influence seems to shift with educational level. The fact that first-year university students with increased work experience appraised their professional goal as less difficult than their counterparts with reduced or no work experience, could reflect that they do not focus on the professional development dimension at this moment, as entrance in a new educational cycle centers them on school-related pursuits.

#### *Self-others comparison focus or ability/knowledge development focus – differences related to previous work experience*

For reported self-other comparisons in the professional development goal we found a significant effect of the length of previous work experience. Post-hoc tests showed that students who have been employed for more than one year reported significantly more self-others comparison in the pursuit of their

representative professional development goal ( $M = 3.60$ ), than students with reduced work experience ( $M = 2.97$ ,  $p < .05$ ). Reported self-other comparisons in the school goal were not significantly influenced by students' previous work experience. Focus on ability/knowledge development due to previous work experience did not yield a significant effect, neither for the professional development goal, nor for the school goal.

It seems that an increasing work experience modulates the manner in which students perceive their representative professional development goal, while this change does not appear in the school goal. This could indicate that self-other comparisons are an important dimension in the representation of the relevant professional goal; though for our sample at least, previous work experience does not significantly influence the representative school goal for this dimension. This supports the domain and task specificity of achievement orientations (Elliot, 2005), and brings forward the relevance of previous work experience in differentially shaping such orientations.

#### *Gender differences in goal dimensional assessments*

Analyses of gender differences in goal involvement, self-other comparison focus and ability/knowledge development focus showed that for the *professional development goal* female students reported increased *involvement* compared to male students. The same pattern emerged in the *school goal*, where girls declared more involvement than boys. No significant gender differences were found for involvement in the personal life goal. Girls also declared more *ability/knowledge development* focus for the professional development goal, while for focus on self-other comparisons we found no gender differences in any of the three goals.

As previously mentioned, research on gender differences in achievement motivation is somewhat scarce and contradictory. Our findings regarding the increased levels of focus on ability/knowledge development reported by girls in the school and the professional development goal bring forward an interesting issue. Students assessed personally relevant goal contents. Hence, does the mastery focus indicate an actual tendency of girls to concentrate on what they learn when pursuing a goal, or is an indicator of self-presentation effects? Can we advance a hypothesis of positive illusions constructed on coordinates of a mastery orientation? Further research on gender differences regarding these dimensions will have to focus on the translation of goals into action and assessment of goal pursuits during action implementation. This will help verify whether our findings reflect a behavioral tendency or just gender specific positive illusions which frame a pursuit in terms of self-development.

## **5.2 STUDY 4 Investigation of goal management strategies for goal dimensions**

### **5.2.1 Overview of the present study**

Generation of personal goals is based on individual conceptualizations of outcomes one envisions, in terms of approach or avoidance. The previous study focused on mapping within subject patterns of representative personal goals in the three life domains – education/school, professional development, and personal life. We then conducted between subject analyses on the impact of gender, educational level, and previous work experience on domain-specific dimensional assessment. The present study tries to uncover goal management correlates of self-assessed goal dimensions. We used two important models of goal management with contents specified for the academic domain, which from a developmental perspective, is the dominant life-domain for emerging adults. The first model is the 2X2 achievement goal model proposed by Elliot and colleagues (for extensive reviews see Elliot, 2005, Elliot & Thrash, 2002) and the second is the developmental regulation SOC model (Selection – Optimization – Compensation) elaborated by Baltes and colleagues (Baltes, Baltes, Freund, & Lang, 1999; Freund & Baltes, 2002). The first model has been previously mainly tested and applied in educational settings. The second model has had so far applications in life-span studies focusing on successful aging (Freund & Riediger, 2001, 2003; Krampe & Baltes, 2003; Marsiske, Lang, Baltes, & Baltes, 1995), and has been introduced in the study of inherent dynamics in adolescence and early adulthood only in the last years (Lerner, 2005; Lerner, Freund, De Stefanis, & Habermas, 2001; Lerner, Theokas, & Jelcic, 2005).

We aimed at finding plausible correlates and predictors for personal goal self-assessment, in order to verify if the above mentioned models can be traced in individually relevant goal pursuits. As we started from idiographic data and appraisals, we believe that this starting point, as previously mentioned, better reflects how students perceive and organize their development on the three life-domains. The nomothetic, empirically proven values of the two models used in this study assures a theory-based analysis of these personal pursuits. In previous studies on personal goals, subjects generated contents and their adjacent appraisal have been used to map relations with different indicators of well-being (Cantor et al., 1987; Emmons, 2003; Oishi & Diener, 2001). Relations with goal dimensions related to global academic functioning have been analyzed, though, to a less extent.

As this approach is new, we consider the present study as a preliminary one, in which we explore prediction patterns, which can be further detailed in other research. Hence, we view all results as preliminary and interpret them taking into account both the benefits and limits of multidimensional personal goal assessment. We strongly believe that idiographic generation and appraisal of personal goals can offer very complex information of how individuals conceptualize and perceive their areas on life functioning. It also brings more

contextual specific input, compared to exclusively normative approaches, experimental or survey based.

### ***5.2.2 Goal achievement orientations – the 2X2 dimensional model of achievement goals***

The 2 (mastery versus performance) × 2 (valence: approach versus avoidance) framework for achievement goals (Elliot & McGregor, 2001) was elaborated as a response to a growing body of empirical evidence which demonstrated that setting performance goals is sometimes more efficient than setting and pursuing mastery goals. Initial achievement motivation models rather focused on the perils of performance orientation and advantages of mastery goals (Dweck, 1985; 1986), a new conceptualization of goals depending on their focus on success (approach) versus failure (avoid), opened the door for very complex lines of research (for a review see Elliot, 2005).

A close analysis of these studies, in both experimental and applied settings has led us to summarize the differential impact of each type of goal in the 2X2 achievement goal model. Firstly, *contextual factors* (*where, when, with whom ones sets and pursues a goal*) define how adaptive a type of goal is in a certain situation, from a means accessibility perspective, to the goals enforced and sustained by the reference group. Secondly, *goal content* aspects refer to dimensional evaluations of specific goals in terms of importance, difficulty, or novelty, with evaluations being given the individual. Thirdly, *goal striving processes* (*how, through what means and strategies or for how long one pursues a goal*) can encompass strategies and implementation procedures of goal contents, with an accent on self-regulation of the relation goal-action.

The goal content aspect represents an understudied part in the 2X2 achievement goal model. This is mainly due to the fact most studies either focus on predefined goal contents given to subjects for evaluation, or on global goal categories (e. g. goal orientation in approaching a specific school subject matter, sport contests, organizational challenges and so on). To our knowledge, analyses of personal goal characteristics through the lenses of the 2X2 achievement goal model have not been undertaken in research studies. A series of studies conducted by Elliot and Sheldon (1997, 1998) did use the approach-avoidance dichotomy in order to code idiographic goal contents. This line of research proved that avoidance framed goals were a negative predictor for all measures of well-being the authors employed.

We believe that in order to offer more specific content determinants regarding goals and achievement orientations, an important exploratory endeavor resides in mapping how levels of personal goal dimensions are related to 2X2 framework orientations. As personal goals are best assessed through mixed methods, investigation of goal dimensional characteristics is saturated in relevant self-perceptions, hence increasing its ecological value. Theoretical recommendations postulate that achievement orientations should refer to specific contexts, but assessment methods, mainly in questionnaire form, usually rely

on more global goal characteristics. This discrepancy between methodological concerns for domain-specificity (Jagacinski & Duda, 2001) and the reality of research studies using mainly global assessments of 2X2 goals, can be due to difficulties in identifying goal strategies that are domain and task specific.

In our study, we employed a very robust measure for 2X2 achievement goals, namely the Achievement Goal Questionnaire (Elliot, 1999; Elliot & Church, 1997), in the form adapted for a general academic context by Finney, Pieper, and Barron (2004). School is a major life-domain for emerging adults. It facilitates or inhibits the development of specific patterns in achievement goal orientations for subject matters, teaching styles, learning strategies, group-work preferences. The achievement goal orientations will later on be reflected in goal patterns in the work domain or in family life. From a developmental perspective the school domain is the life-domain adolescents and emerging adults know most about; they spent the largest part of their life up to that point in the structured and growth-based educational system. These are the reasons why we used an achievement goal measure for a general academic context, which includes a specific time-frame (participants), but reflects more general school achievement goal orientations. For the time-frame of goal instructions were "The following statements concern your attitudes toward learning and performance in your classes this semester." (Finney et al., 2004, p.371).

Chiu, Hong, and Dweck (1994) and Dweck and Leggett (1988) did suggest that achievement goal orientations are domain specific, with specific domains having specific, even contradictory goal patterns. This statement has been mostly taken as an axiom, with everybody acknowledging its veridicity, but very few studies actually investigating multiple achievement orientations for multiple goals. Vandewalle (1997) proposed that a mid-level of specificity in the analysis of achievement goals would be most useful, namely "[...] at the level of *major life domains* such as academics, work, and athletics" (p. 1002, italics added). From this perspective we believe that a mid-level analysis of achievement goals would tap both into general orientation and domain-specific patterns and would shed some light into content and process aspects of achievement goals. Capitalizing on these statements, we used in the personal goals dimensional assessments two specific items which reflected self-other comparisons and ability/knowledge development focus, respectively. The former aspect is representative for a performance orientation, while the latter reflects a mastery orientation. Items were formulated only for the approach dimension, as the avoidance dimension is very sensitive to self-enhancement and self-deception (Paulhus, 1991).

In order to reach the desired mid-level of specificity, we explored how dimensional assessments in the three representative goals are influenced by academic goal orientations. Use of achievement goal orientations as predictors for personal goal dimensions will contribute to mapping how achievement orientations (domain-specific) are differentially reflected in specific self-appraised goal attributes.

### 5.2.3 *Intentional self-regulation in the transition to adulthood*

Current models of adult development highlight the importance of *intentionality in the construction and projection of self in the future* (Brandtstaedter & Rothermund, 2002; Brandtstaedter & Rothermund, 1994; Lerner, 2006). As goals encompass the manner in which individuals cognitively represent their futures, these complex personal representations offer meaning and direction to plans and action sequences (initiation, monitoring, maintenance, evaluation). Though personal goals are directed towards the future on dimensions of attainment/approach, maintenance or avoidance, they always reflect an individual's previous experience in specific life domains or with certain patterns of activities. Relevant life domains in adolescence or adulthood can be extracted from categories of developmental tasks defined by social and cultural norms (Nurmi, 1991; Oerter & Dreher, 1998). As Baltes (1987) synthesized, *developmental influences* can arise from age-graded determinants, history-graded factors, and non-normative influences. Age-graded determinants are strongly linked to a person's biological age and are viewed as stable and similar for most individuals in an age group. Largely seen as developmental tasks (Nurmi, 1992), they are more specifically defined in a historical, socio-cultural context. They are then individualized by non-normative influences that are peculiar to a person's idiosyncratic life-course.

In this context of developmental influences, the *SOC-Model* (Baltes, 1987, 1997; Baltes & Baltes, 1980, 1990) provides a general, meta-theoretical framework for understanding human development across different domains of functioning and stages of life. The model proposes two basic assumptions: (a) development is a process of resource generation; (b) development operates within limited internal and external resources. It was initially elaborated as a general psychological theory of behavior development, proposing three fundamental processes of life-management. These processes are *selection*, *optimization*, and *compensation*, which are defined by specific types of behaviors. Freund and Baltes (1998) specify that: (a) selection of goals or preferences can be elective or loss-based; (b) optimization includes choice of goal-relevant means; (c) compensation refers to strategies aimed at reducing/limiting a decline in personal resources. The *SOC* behaviors are seen as universal processes, but must be defined with respect to specific contexts and person-specific features.

Based on these goal management strategies, at different ages individuals are supposed to approach goals differentially (Freund & Baltes, 2002; Freund & Ebner, 2005; Riediger, Freund, & Baltes, 2005). These age-related peculiarities point out specific, developmentally regulated patterns of defining what "personal" means. Results of extensive research sustain this perspective. For instance, using self-report measures of SOC mechanisms and developmental outcomes, Freund and Baltes (2002) showed that elective selection presents a linear increase from early to middle and old adulthood, while loss-based selection is used most frequently by middle-aged adults. Younger adults tend to be oriented and persistent when focused on maximum performance attainment goals. Older adults prefer personal goals framed in terms of compensation and maintenance (Freund & Ebner, 2005), due to age-associated decline of internal



resources. Loss-avoidance is mostly linked to reduced well-being in younger adults. Baltes, Staudinger, and Lindenberger (1999) integrate the SOC model in a process-based conceptualization of human development, on three main levels: antecedent conditions, orchestrating processes, and outcomes. SOC mechanisms represent the orchestrating processes.

We mentioned several times that the SOC model has been mostly employed in analyzing adult development and differences between young adults, middle adults, and old adults. In the last years, a group of researchers at the Tufts University, led by Richard Lerner, included the SOC model, through the SOC questionnaire, in their extensive longitudinal studies of indicators for Positive Youth Development – PYD (Gestsdottir, 2005; Gestsdottir & Lerner, 2005; Lerner, 2005). The PYD longitudinal study involves 5th-grade youth in the United States and their parents (at the beginning of the research). The study aims at testing a theoretical model about the role of developmental assets in the promotion of PYD, conceptualized through: Competence, Confidence, Connection, Character, Caring, and Contribution. Another main goal of the research was the identification of problem and risk behavior correlates (Lerner, Lerner, et al., 2005).

The research frames adolescent development through the explanatory grid of *developmental systems models* (Lerner, 2006), postulating a mutual determination in development between the individual and his life-context. This determination occurs through *developmental regulation*, which involves interactions among multiple levels of individual functioning and the environment.

In the PYD program the SOC questionnaire was used as a measure for *intentional self-regulation during adolescence*, hypothesizing that SOC processes would covary positively with PYD indicators and inversely with indicators of risk behaviors (Lerner, 2005). In a longitudinal sample of fifth and sixth graders the factor structure of the SOC measure was not well defined, which was explained by the possibility that SOC strategies may still be developing during this period. After employing principal component analyses, reliability analyses, and an assessment of convergent, divergent, and predictive validity of the SOC instrument, Lerner and colleagues (2005) conclude that it is a valid measure of intentional self-regulation even in early adolescence.

In the analysis of data from the first two waves of the study, Gestsdottir and Lerner (2007) bring into attention significant positive relations between intentional self-regulation, as indexed by SOC behaviors and indicators of positive development (the five components of PYD) and negative relations between SOC scores and indices of risk/problem behaviors. These patterns were found in both waves of the research.

Capitalizing on both lines of research, on adults and on adolescents, we used the SOC Questionnaire as an index for intentional self-regulation, specifying that the behaviors refer to the *educational domain*. We opted for a domain-specific approach on SOC components in order to tap into life-structures and contents that are familiar and representative for all participants. As previously presented, the SOC model is a meta-theory of life management, but, according to the initial formulation of Baltes and colleagues (1999), it is important to specify these

behavioral indicators of self-regulation in specific domains. As the achievement goal measure was specified for a general academic context, we did the same for the SOC instrument. We respected the instructions recommendations of Baltes and colleagues (1999), as presented in the initial technical manual of the instrument.

From a personal goal perspective, we were interested in analyzing whether SOC relevant behaviors can predict dimensional assessment of representative goal contents. Up to this point, the SOC model has not been analyzed in relation to personal goal structures. We believe that such an approach can offer new and complex information on their impact upon perceived goal difficulty, novelty, involvement, comparison and/or ability development focus.

#### 5.2.4 Aims of study

In the present study we wanted to investigate goal management correlates of personal goal dimensional assessment, from an achievement goal perspective and a goal resource management approach. As personal goals have been previously mainly investigated in relation to well-being (Emmons & King, 1988; Lawton, Moss, Winter, & Hoffman, 2002; McGregor & Little, 1998), we consider that an approach which taps into strategical goal orientations offers more depth to personal goal analysis. Both measures we used are representative for the achievement motivation research (Elliot & Church, 1997; Elliot, 2005; Elliot & Thrash, 2002; Jagacinski & Duda, 2001) and the goal resource management approach (Freund & Baltes, 1998, 2002; Riediger & Freund, 2006).

Our main objective was to analyze achievement goal orientations and goal resource strategies reflected in the dimensional assessments.

The exploratory study focused on identifying viable predictors for self-assessments on each of the five goal dimensions selected in this line of research. Identification of prediction patterns will offer a more contextual description of dimensional self-assessments of relevant personal goals. We approached this from both a goal specific angle (we introduced in the regression analysis the other relevant goal dimensions which significantly correlated with the criterion goal dimension) and a more general goal process perspective (assessments of achievement goal orientations and SOC strategies related to academic functioning).

In the present study we aimed at analyzing the following:

O1. Which are the predictors for perceived goal *difficulty*, in terms of goal dimensions, achievement orientation, and goal resource management strategies?

O2. Which are the predictors for goal *novelty*, in terms of goal dimensions, achievement orientation, and goal resource management strategies?

O3. Which are the predictors for reported goal *involvement*, in terms of goal dimensions, achievement orientation, and goal resource management strategies?

O4. Which are the predictors for *self-others comparisons* in goal pursuit, in terms of goal dimensions, achievement orientation, and goal resource management strategies?

O5. Which are the predictors for ability/knowledge development focus in goal pursuit, in terms of goal dimensions, achievement orientation, and goal resource management strategies?

### 5.2.5 Instruments

Participants first filled in the *PGIP*. They were then given the SOC Questionnaire and subsequently the AGQ measure.

*SOC Questionnaire.* The SOC questionnaire is a self-assessment measure created to identify self-reported SOC relevant behaviors. The questionnaire is designed in a forced-choice format, with each item having one SOC relevant behavioral item and one non-SOC item, with subjects having to select one of the two items (Freund & Baltes, 2002). For the SOC questionnaire we chose the 6 items per scale version, with the following scales: elective selection, optimization, and compensation. We did not include the loss-based selection scale of the measure in the present study. The form of the questionnaire we used comprised 18 items. The SOC Questionnaire was adapted from the original German version, with the instructions formulated domain-specific for goal resource management in the education domain, according to the original recommendations of the authors (Baltes, Baltes, Freund, & Lang, 1999).

*Achievement Goal Questionnaire - AGQ.* The AGQ is a measure of achievement goal orientation in the 2 (mastery versus performance) X 2 (approach versus avoidance) paradigm elaborated by Elliot and colleagues (Elliot, 2005; Elliot & Thrash, 2002; Elliot, 1999; Elliot & Church, 2001, 1997). We used a version of the AGQ which was adapted by Finney, Pieper, and Barron (2004) for a general academic context. The AGQ is a robust assessment measure, containing 12 items, three for each scale (Mastery Approach, Mastery Avoidance, Performance Approach, and Performance Avoidance). Its validity has been tested extensively in educational (Elliot & Moller, 2003; Elliot & Thrash, 2001) and sports contexts (Elliot & Conroy, 2005; Wang, Biddle, & Elliot, 2007). Items are assessed on a seven-point Likert scale, from 1 (at all) to 7 (completely).

*Dimensional index.* From the *PGIP* we used the dimensional assessments of each domain representative goal, computing a dimensional index, which was the mean of appraisals on that dimension for the three goals. This is a frequently used procedure in processing of dimensional assessment for personal goals (Cantor et al., 1987; Emmons et al., 1998; Little, 2007). We had five dimensional indices, one for each investigated goal dimension. This dimensional index was then entered in the regression, as criterion.

### 5.2.6 Results and discussion

#### *Descriptive statistics*

Descriptive statistics for the primary variables are presented in Table 5.5.

**Table 5.5** Descriptive statistics for the primary variables

Variable	M	SD	Observed range	Possible range
Goal difficulty index	3.78	.97	1-6	1-6
Goal novelty index	3.18	1.07	1-6	1-6
Goal involvement index	4.69	.87	2-6	1-6
Goal comparison index	3.03	1.30	1-6	1-6
Goal ability development index	4.63	.85	2-6	1-6
Mastery approach orientation	16.87	3.27	3-21	3-21
Mastery avoidance orientation	11.75	4.08	3-21	3-21
Performance approach orientation	11.93	4.60	3-21	3-21
Performance avoidance orientation	11.09	4.32	3-21	3-21
Selection (goal management)	3.57	1.57	0-6	0-6
Optimization (goal management)	4.72	1.14	1-6	0-6
Compensation (goal management)	3.36	1.27	0-6	0-6

Gender was coded 0 for male and 1 for female.

Educational level was coded 0 for final year in high-school (12<sup>th</sup> grade), 1 for first year in university, and 2 for final year in university.

In Romania the grading system is on a scale from 1 to 10. The general annual mean is computed from the mean grades for each semester of study.

In order to investigate prediction patterns for each of the assessed goal dimensions we computed simultaneous multiple regression analyses. A basic model was employed to test the four achievement goals and three resource management strategies as predictors of each goal dimension index (goal difficulty, goal novelty, goal involvement, self-others comparisons, and goal ability/knowledge development in goal pursuit). In order to analyze the impact of the other self-assessed goal dimensions on the criterion dimension, we also introduced in the regression model the appraisal of the other dimensions.

*Goal dimensions, achievement orientation, and goal resource management strategies as predictors of perceived goal difficulty*

Following preliminary analyses through which we trimmed non-significant predictors, in the final regression model for perceived goal difficulty we introduced: the goal novelty index, the goal comparison index, the ability development index, and the mastery avoidance academic goal orientation. The overall model was significant,  $F(5, 354) = 24.09, p < .001, R^2 = .25$ . Participants tended to report higher perceived difficulty for their goals when these goal were more novel ( $\beta = .35, p < .001$ ), were being assigned more involvement ( $\beta = .18, p < .001$ ) and implied higher comparisons with others ( $\beta = .12, p < .05$ ).

An interesting aspect was the finding that ability development focus was a negative predictor for perceived difficulty ( $\beta = -.10, p < .05$ ). In our sample at least, it appears that high difficulty goals were associated with less focus on developing one's abilities through pursuit of those goals, while involving more self-others comparisons. This finding in the specific goal dimensional indicators was further sustained by the dominant achievement goal orientation which was a positive predictor for goal difficulty, namely the Mastery Avoidance orientation ( $\beta = .13, p = .005$ ). Students who presented their goals as being hard to pursue had a predominant Mastery Avoidance academic orientation, in that they focused on avoiding having lower performances compared to their own previous school achievements. As other achievement goal orientations or goal management strategies did not significantly predict the difficulty level of personal goals, we can say that the Mastery Avoidance criterion is better reflected in appraisals on the perceived difficulty dimensions. This is an interesting finding from the perspective of achievement goals in the 2X2 model (Elliot & Thrash, 2002), as evidence regarding the dynamics of mastery avoidance goals is quite scarce.

*Goal dimensions, achievement orientation, and goal resource management strategies as predictors of perceived goal novelty*

Through preliminary analyses we excluded non-significant predictors and we introduced the difficulty index and the goal comparison index in the final regression model for goal novelty. The overall model was significant,  $F(2, 354) = 42.08, p < .001, R^2 = .19$ . No achievement goal orientation or goal

resource management strategy was found to have a relevant impact on how novel participants perceived their goals.

Students tended to appraise their personal goals as more new, compared to what they had previously pursued, when these goals were of higher difficulty ( $\beta = .38, p < .001$ ) and involved strong comparisons with others ( $\beta = .13, p < .01$ ). The relation goal difficulty – goal novelty is in line with previous findings regarding conceptualizations of difficult goals (Austin & Vancouver, 1996; Locke & Latham, 2002). An interesting addition to the personal representations of the difficulty dimension is that the more difficult goals are those which involve high levels of self-other comparison. This indicates that a normative focus in construing a goal leads to the individual's considering that goal as more difficult, perhaps due to the extensive processing resources required by constantly contrasting one's own pursuits to those of others. From an achievement goal perspective, studies do indicate that performance goals are linked to a substantial orientation of attentional, strategic and emotional resources toward comparing one's pursuits to the behaviors of others (Brunstein & Olschner, 1996; Elliot & Church, 1997). Though we only assessed static goal structures, without tapping into effective actions, it appears that even at this level goal novelty appraisals are inherently linked to substantial examination of others' goals and actions.

*Goal dimensions, achievement orientation and goal resource management strategies as predictors of goal procedural involvement*

Prior analyses guided us in the exclusion of nonsignificant predictors and hence we introduced in the final regression model the following predictors: the goal difficulty index, the ability development index, the performance avoidance and mastery approach academic goal orientations, and the Optimization dimension of goal resource management. As initial bivariate correlations indicated a significant positive relation between reported procedural goal involvement and educational level ( $r = .12, p = .001$ ), we also introduced educational level as predictor. We mention here again that educational level was coded 0 for final year in high-school (12<sup>th</sup> grade), 1 for first year in university and 2 for final year in university.

The overall model was significant,  $F(6, 354) = 17.03, p < .001, R^2 = .22$ . From a goal dimension perspective, participants reported more intense procedural involvement in pursuit of their goals when these goals had higher levels of difficulty ( $\beta = .25, p < .001$ ), and were focused on ability development ( $\beta = .28, p < .001$ ). Students seem to report the level of goal pursuit involvement as a positive function of difficulty assessments, indicating that consciously defined goals require more commitment when they are represented as being difficult.

Reported procedural involvement in goal pursuit increased with educational level ( $\beta = .10, p < .05$ ), which could be an indicator for the development of personal responsibility structures and conscious assumption of one's accountability in pursuing a goal. This tendency is sustained by tenets of

life-span development models and research which postulate that increase in age is related with more differentiate allocation of resources to goals of high personal relevance (Baltes et al., 1999; Lerner, 2005; Salmela-Aro et al., 2007; Riediger & Freund, 2006).

Higher involvement in representative personal goals was also predicted by a strong Performance Avoidance achievement goal orientation ( $\beta = .14, p < .005$ ). We detected a positive prediction trend regarding the impact of a Mastery Approach orientation on goal involvement ( $\beta = .09, p = .07$ ). Of the goal resource management strategies, higher levels of self-reported optimization behaviors were positive predictors ( $\beta = .11, p < .05$ ) for more intense procedural involvement in personal goals. These aspects are interesting and somewhat puzzling. Participants report more involvement in their goals when they tend to avoid being less competent than others in school activities, but also when they try to optimize their resources in pursuing activities in the same life-domain.

#### *Goal dimensions, achievement orientation, and goal resource management strategies as predictors of goal focus on self-others comparison*

We first analyzed bivariate correlations between the comparison index and the other relevant variables in our study. Based on the significant correlations, we conducted a series of preliminary analyses aimed at excluding non-significant predictors. The final regression model for the comparison index of representative personal goals included the following predictors: goal difficulty index, goal novelty index, the performance approach and avoidance academic goal orientations and all three dimensions of goal resource management (selection, optimization, and compensation). The overall model was significant,  $F(7, 354) = 10.87, p < .001, R^2 = .18$ .

From a goal dimension perspective, participants reported comparing themselves with others in pursuit of their goals when these goals had high levels of difficulty ( $\beta = .18, p = .001$ ) and high level of novelty ( $\beta = .13, p < .05$ ).

A high focus on self-other comparisons in the pursuit of personally relevant goals was best predicted by high levels of performance approach ( $\beta = .12, p = .05$ ) and also high levels of performance avoidance academic goal orientations ( $\beta = .13, p < .05$ ). This finding supports previous research regarding performance goals, and details a possible interdependence between the approach and avoidance dimension of a normative comparison achievement orientation.

A complex pattern of prediction emerged regarding goal resource management strategies. High comparison in the pursuit of personal goals was best predicted by high self-reported use of optimization ( $\beta = .11, p < .05$ ) and compensation ( $\beta = .11, p < .05$ ) strategies for academic goal regulation. A very significant and intriguing prediction pattern was found for self-reported use of selection strategies in academic goal resource-management. Increased comparison with others in personal goal pursuit was predicted by reduced use of selection goal management strategies ( $\beta = -.16, p < .005$ ). This negative prediction

patterns, compared to the other two goal management strategies (optimization and compensation), which were positive predictors, could be related to different mechanisms underlying the components of the SOC model.

*Goal dimensions, achievement orientation, and goal resource management strategies as predictors of goal focus on ability development*

5 Similar to the other regression analyses in the present study, we first introduced in the regression equation the significant bivariate correlations between the ability development goal index and the other relevant variables in our study and then conducted a series of preliminary analyses aimed at excluding nonsignificant predictors. The final regression model for the ability development index of representative personal goals included these predictors: goal difficulty index, goal involvement index, the mastery approach academic goal orientation, and the compensation dimension of academic goal resource management. The overall model was significant,  $F(4, 354) = 15.14, p < .001, R^2 = .14$ .

Instrumental involvement in goal pursuit is a positive predictor for ability development focus in approaching the representative personal goals ( $\beta = .31, p < .001$ ), while perceived goal difficulty is a negative predictor ( $\beta = -.12, p < .05$ ). Hence, it appears that in our sample, students report more ability development in goal pursuit when these goals are easy and they are allocated high procedural involvement (time, energy, resources).

Global mastery approach academic orientation positively predicted high levels of focus on ability development ( $\beta = .11, p < .05$ ). This indicated congruence between goal-level appraisals of focus on ability and knowledge development and a dominant mastery-approach for academic functioning. This pattern of relations has long been postulated and investigated by researchers partisan to the importance of a mastery approach on individual pursuits (Dweck, 1986; Elliot & Rawsthorne, 1999). As assessment of personal goals was made on idiosyncratically relevant pursuits, this finding brings arguments for the value of this type of appraisal and for the explicative top-down power of a mastery approach goal orientation. As participants first worked on their own self-generated goals and only afterwards filled in the AGQ questionnaire, contamination effect from the general measure were not possible. It seems that assessment of personal goals regarding self-development in terms of abilities and knowledge matches a more general approach on educational achievement strategies.

From a goal resource management perspective, higher self-reported use of compensation strategies in academic life best predicted high levels of ability development focus in personal goal pursuit ( $\beta = .11, p < .05$ ). Compensation strategies are defined through behaviors aimed at maintaining an adequate level of functioning in contexts where resources (internal or external) are no longer available (Baltes et al., 2004). This pattern of prediction would suggest a positive focus on self development (abilities and knowledge) appears mainly when individuals are trying to counteract and adapt to decreases in resources related to academic functioning.



### 5.2.7 General discussion

#### Goal dimensions and achievement goal orientations

Our study aimed at tapping into achievement goal orientations influences upon personal goal dimensional assessments. The main findings, summarized in Table 5.6 indicate that 2X2 goal orientations are plausible predictors for some goal dimensional assessments. As we used idiosyncratic assessments students made on their most representative personal goals, results suggest that for some goal dimensions links with mastery or performance orientations, as operationalized in the AGQ measure, can further refine these goal-based appraisals.

**Table 5.6 2X2 achievement goal orientations influences upon personal goal dimensional assessments**

2X2	Personal goal dimensions				
Achievement Orientation	Difficulty	Novelty	Involvement	Comparison	Ability/knowledge development
Mastery approach	-	-	-	-	Positive predictor for increased focus on self-development
Mastery avoidance	Positive predictor for perceived difficulty	-	-	-	-
Performance approach	-	-	-	Positive predictor for comparison in goal pursuit	-
Performance avoidance	-	-	Positive predictor for goal involvement	Positive predictor for comparison in goal pursuit	-

The associations we found between *mastery approach* orientation and perceived *ability/knowledge development* focus indicate that specific goal self-assessment of this mastery relevant aspect is strongly reflected in a more general tendency to position oneself to school activities. Also, a *comparison* focus in goal self-assessment was best predicted by *performance avoidance and approach* orientations. These findings support from a methodological perspective the viability of personal goal self-assessments on achievement relevant aspects, indicating that the dimensional index assessment for the above mentioned two dimensions reflects more general achievement goal orientations.

Students who perceived their goals as being more *difficult* tended to have higher *mastery avoidance* orientation. Mastery avoidance goals are seen as

task and/or self focused goals, which direct the individual on striving to avoid underperforming in an activity, compared to previously personal achievement levels. From a school perspective these goals can refer to trying to avoid getting lower grades compared to the grades one received in the past or trying not to misunderstand a lesson or a requirement from the teacher.

The fact that perceived task difficulty is related to mastery avoidance goals is an aspect researchers have pursued from the perspective of perfectionism. Perfectionism is linked to individuals setting task or self referent goals which are very high in difficulty and focused on avoiding underperforming compared to previous personal attainments. The more difficult such goals are, the more distress and avoidance behaviors are displayed by the subject (Elliot, 2005). Also, mastery avoidance goals are employed, from a developmental perspective, by people who report reduced functioning in different life-domains, compared to their previous levels of functioning, and thus focus on trying not to do a task worse than they did it before. Our study identified that high levels of goal difficulty are associated with a mastery avoidance orientation toward school-relevant activities. As previously mentioned, educational goals, but also professional development, and personal life were highly saturated in school-related contents. This would indicate that there is a process link between how students view the difficulty of their strivings and their action representations in educational contexts, namely as trying to avoid underperforming compared to previous personal competence levels.

Further on, in experimental studies, perceived task difficulty has been approached as an important antecedent of mastery-avoidance goals, though research is still scarce and contradictory in postulating clear findings (Corvin & Harackiewicz, 2005; VanYperen, Elliot, & Anseel, 2009). In discussing antecedents of mastery avoidance goals, Nico VanYperen (2006) presents three main types of occasions when individuals tend to adopt mastery avoidance goals: (a) when they have previously received very positive feedback; (b) when high levels of performance are attributed to luck; and (c) when in the near future they will encounter a performance period (examination, test, etc.). In an interesting line of studies employing both experimental tasks (Stroop task) and field research (athletes, managers), Van Yperen (2006) asked subjects to choose a goal orientation, before, during, and after performing a task; options were goals reflecting each of the 2X2 achievement goal combinations. In comparing choice of mastery avoidance goals in experimental versus field research, the author concluded that in real-life settings individuals report use of mastery avoidance goals to a greater extent than in laboratory settings. This can be due to the fact that in real-life contexts antecedents for a mastery avoidance orientation are more poignant and personally significant.

In representing personally relevant goals we believe that the criteria advanced by Van Yperen (2006) offer pertinent explicative points. All subjects in our study were either at the beginning or at the end of an educational cycle, with important exams to be approached during the current academic year. Hence, high levels of mastery avoidance goals could be a positive predictor for appraised goal difficulty. The imminence of these exams activated a stronger orientation

toward “not to perform worse than before”. This assumption is sustained by the predominant contents of school and professional development goals listed by subjects that were strongly related to the upcoming evaluations: Baccalaureate exam (for high-school seniors), first examination period in university (for first year students) and graduation exam (for last-year university students).

Another interesting finding regarding achievement goal correlates of dimensional goal assessments was that in our sample high levels of reported procedural *involvement* in goal pursuit were associated with an increased *performance avoidance orientation*. Performance avoidance orientation refers to goals framed as “trying not to perform worse than others”, hence encompassing an external normative standard of comparison. It seems that students who report allocating a large amount of time and energy in pursuing their goals tend to have an increased orientation toward avoiding underperforming compared to others. In a series of three studies (two prospective and one short-term longitudinal) McGregor and Elliot (2002) have investigated 2X2 achievement goal orientations as predictors for achievement relevant processes prior to school examinations. They have shown that performance avoidance goals were positive predictors for challenge and threat appraisals before and during examinations and for the amount of time spent studying prior to the exam. It can be that in our sample the positive association between reported goal involvement and performance avoidance orientation toward school activities is a reflection of coping mechanisms. Students are oriented toward avoiding to underperform compared to others focusing on “trying harder”, hence the increased involvement in goal pursuit.

### *Goal dimensions and SOC strategies*

The main findings regarding prediction patterns of SOC strategies for dimensional personal goal assessments are summarized in Table 5.7.

Use of *compensation* strategies was a positive predictor for goal focus on self-others comparisons, and also for a reported focus on self-development (abilities and knowledge) in personal goal pursuit. This could indicate that each of the goal dimensions is associated with strategies of reducing or counteracting perceived or objective losses in functioning. In the initial formulation and in many developmental studies compensation strategies are linked to middle-adulthood and old-age, when mainly due to decreases in personal and environmental resources, individuals have to reconsider and reshape their strategies in approaching different tasks (Baltes, 1997; Baltes & Baltes, 1990; Baltes et al., 2006; Freund & Baltes, 2002; Freund, Li, & Baltes, 1999). Gestsdottir and Lerner (2007) make a convincing point in stating that losses appear even in early adolescence, but the type of activities or abilities they refer to are different than in adult functioning. As compensation refers to an individual's ability to adapt to and reduce losses, the authors specify that “Compensation involves means similar to those used in optimization, such as practice, but such actions are aimed at avoiding losses in the face of the loss of goal-relevant means rather than approaching positive states. For example, if a person was absent from school for a

**Table 5.7 Prediction patterns of SOC strategies for dimensional goal assessments**

SOC mechanisms	Personal goal dimensions			
	Difficulty	Novelty	Involvement	Comparison
				Ability/ knowledge development
Selection behaviors				Negative predictor for self-other comparisons
Optimization behaviors			Positive correlation with use of optimization behaviors	Positive predictor for self-other comparisons
Compensation behaviors				Positive predictor for self-other comparisons
				Positive predictor for self development focus

period of time because of illness, the individual can seek alternative means, such as taking an extra class, to maintain functioning” (Gestsdottir & Lerner, 2007, p. 709). This would indicate that compensation mechanisms in goal management are related to mastery-relevant (ability/knowledge development focus), but also performance oriented (self-others comparisons) personal goals.

We found the most complex pattern of prediction on reported SOC strategies for *self-others comparisons*, with selection behaviors as a negative predictor and optimization and compensation as positive predictors. This would indicate that students who report high levels of self-others comparisons for their personal goals employ reduced active selection of goal means. They try to optimize their existing strategies in goal pursuit and use compensation strategies to prevent or cope with losses. In future research on performance oriented personal goals we intend to operationalize these SOC strategies in observation grids. We will ask subjects to monitor in goal implementation the use of these strategies. Hence, we may prompt a more task specific operationalization and in-action examination of goals high in self-others comparisons.

## CHAPTER 6



### BECOMING THE BEST: INTEGRATIVE REMARKS ON RESEARCH STUDIES



### ***A. Experimental achievement motivation perspective***

We innovatively approached the dynamics of assigned mastery versus performance goals in a *highly competitive context*, when different *competitor evaluations* (Study 1b) and *comparison feedback* (Study 2) are given. To our knowledge, the type of operational specification of normative group elements we used in the experimental studies has never been used before in analyzing achievement goals. These elements come to offer a more detailed, process driven look into the manner in which achievement goals self-regulatory mechanisms influence task performance, specifying how ***performance self-regulation*** is constructed on these coordinates. The theoretical and methodological contributions brought by the experimental studies are detailed below.

1. The differentiation *performance indicators* versus *performance contingencies*, that we introduced to guide analysis of the relation achievement goals – performance, has not been thoroughly made so far in existing achievement goals literature. We believe this is an important distinction, as *mastery goals* seem to be rather linked with high levels of task interest, involvement, and future intent to further repeat an activity. Results of Study 1b pointed out this aspect, demonstrating that in a highly competitive task mastery goals do not lead to high levels of performance indicators in the same extent as performance goals. This differentiation can help explain why previous applied educational programs that focused only on development of mastery goals in students did not systematically lead to an increase in academic task performance.
2. Through the simulation of a competitor, whose performance standing was defined in terms of normative evaluation (Study 1b) or comparison feedback (Study 2), we constructed an *experimental task which offers immediate cues to participants regarding their in-task actions*. Achievement goal studies usually rely on global indicators for a normative evaluation criterion. The present experiments, though, focused on how real time comparison mechanisms influence

achievement goals, with a competitor that does the same type of activity, in the same time-frame as the participant. This approach can be further developed in research studies, as it contextualizes an achievement context in the same manner for all subjects. Future studies can for instance rely on definitions of contexts through an ability development focus (intrapersonal standard).

3. The use of *two performance indicators* (*response rapidness* and *accuracy*) in mapping task performance brought forward differential effects of achievement goals on task outcomes.
  - a. In the execution of a novel, competitive task, *performance goals* are associated with very rapid responses compared to mastery goals or no pre-set goals, but they are associated with the most reduced rate of response accuracy when participants perform against a best competitor (Study 1b). Though, when analyzing the pattern of results from a *speed-accuracy tradeoff* perspective, assessed through the competition index, it appears that performance goals are the most efficient in determining high levels of accurate responses in shorter time (Study 1b and 2).
  - b. For the same novel task normative feedback (one was told that he performed better or worse than the competitor) led to intriguing patterns of performance. Mastery goals were negatively influenced by positive feedback, while performance goals were deterred by negative feedback.
  - c. An interesting aspect to be further analyzed refers to a *differential focus on dimensions of performance*, depending on the type of achievement goal one holds. In a competitive context, do individuals choose to focus on rapidity rather than accuracy? Or do they evaluate *ab initio* one parameter as being the most relevant for performance, hence disregarding other indicators?
4. The underexplored link between achievement goals and *task procedural goals* (as defined in goal setting models) has been brought into attention through the experimental studies. In both studies, when subjects were not assigned an achievement goal orientation and relied only on the procedural specifications of the task, they tended to have high accuracy levels, though they were significantly less rapid than their achievement goal counterparts. More detailed investigation of this relation could offer valuable insight into the processes and differential strategies individuals employ when they represent and pursue desired or feared outcomes in terms of development or demonstration of competence. We strongly believe that the future of this exhaustive line of research resides in: (1) identifying the mechanisms which underlie the impact of achievement goals on objective performance indicators, not only on performance contingencies; and (2) investigating the manner in which mastery versus performance goals interact with task procedural goals in influencing performance.



5. We ascertain that the activity used in the Studies 1 and 2 has limited ecological validity, but we consider that *process dimensions of achievement goals* can be best researched in controlled settings, where adequate analysis of variables can be accomplished. The relation achievement goals – performance indicators and contingencies can in this manner be accurately charted.
6. An important problem raised by Studies 1 and 2 refers to the *dynamics of mastery goals in highly competitive contexts*, which represents an underexplored aspect in achievement goals research. How can mastery goals focus the individual on ability development when the context and evaluation criteria are defined by demonstration of ability and competition with others? The multiple goals perspective, of mastery goals being employed simultaneously with performance goals can offer a more detailed glimpse into how goals function in the achievement of competence (Barron & Harackiewicz, 2001; Pintrich, 2000; Poortvliet et al., 2007; Van Yperen, 2003).

### ***Applied implications***

Differential framing of a *normative group's competence* influences the manner in which *negative comparison feedback* is attended to and how mastery versus competition goals impact on performance. We recommend that in learning contexts initial activity involvement can be better facilitated by clear operational definitions of the reference group against whom performance is being evaluated. Students must be informed of performance expectancies (how much, when, for how long), level of competence of the normative group (it is one thing to compete against the best, medium or worst group of students), and performance progress indicators during learning activities.

Specialists (teachers, psychologists) must tap into how students *perceive the reference group* and whether they *interpret normative competence* in a specific way, developing specific attributional structures, outcome expectations or self-efficacy beliefs.

As our results showed, when students were guided only by *task requirements*, they displayed high levels of accuracy in solving the task, at times even higher than the achievement goal conditions. When no achievement goal is assigned, this does not mean that students do not activate one. In educational setting, this aspect has been researched from a developmental perspective (Koller, 2000), indicating a tendency of younger students to self-select mastery goals in kindergarten and primary school, while older children rather choose performance goals. Hence, an important practical aspect of our findings resides in balancing *assigned with self-selected achievement goals and task goals*. In educational setting increased attention must be given to the goals teachers explicitly and implicitly develop or assign to students.

### ***B. Structural analysis of personal goals (PG) of students in transition to adulthood***

Investigation of personal goals through idiographic and mixed methodologies has flourished in the last decades, with an increase of interest regarding how individuals represent and self-assess their relevant intentional pursuits. The importance of phenomenological distinctions in mapping higher order goals and the uniqueness of ecological pursuits has been brought forward by Austin and Vancouver (1996) in their review on goal structures. Through *the construction of the PGIP* and the exploratory studies on personal goals we analyzed how individually defined desired outcomes can be charted in the transition to adulthood, in the context of *intentional self-regulation*.

1. The exploratory studies were conducted on students in *three critical educational moments*: last year in high-school, first year, and last year of study in university. Personal goals are considered important for the manner in which individuals represent their future development and select paths of action (Cantor et al., 1987; Nurmi, 1989, 1991). Therefore, comparisons of individuals at critical points in educational development can reveal useful information on developmental trajectories in the transition to adulthood.
2. From a methodological standpoint, the *development, testing, and implementation of the Personal Goals Investigation Procedure (PGIP)* represents a new approach on tapping into individual goals. Starting from existing theoretical and methodological tenets, we innovatively chose to focus on facilitating: (a) generation of personal goals on domains of functioning; and (b) subject-guided selection of personally relevant goals.
3. In the investigation of transitions to adulthood, we brought forward *within individual differences in personal goal self-assessments* (Study 3a), with the representative *school* and *professional development goals* bearing more changes at different educational moments especially in appraised self-others comparisons. In assessing within-individuals patterns of **goal relations**, we found high levels of similarities in the three educational moments, with students appraising G1G2 relations more facilitative than G1G3 and G2G3 relations. These similar patterns that emerged could be indicative of a heightened perceived facilitation link between what one intends to do in school and one wants to achieve in professional life. This is an important aspect in using personal goals analysis techniques in raising awareness in students of the interdependence between school life and professional development. The perceived independence of the personal life goal to the other two life domain goals is an important observation from a developmental perspective, as it opens a new relevant line of research regarding changes in perceptions of goal relations among life domains, with increasing educational and work experience. If an individual considers that his personal goals in two domains are independent of each other,

for instance the goal “to get better grades” (school domain) and the goal “to make parents understand that I am not perfect” (personal life domain), it can be that cognitive structures which connect the two goals are either not developed yet, or are not activated to process these relations in more depth.

4. The pattern of results for between subjects’ differences in personal goals (Study 3b) showed that the *difficulty* of the self-selected representative *professional development goal* changed with **educational level** as a function of **previous work experience**. This is an interesting finding, which reflects the dependence of intentionality structures on previous relevant personal experiences, which sustain goal self-assessments. Also, the degree of *self-other comparisons* in professional goal pursuit was significantly influenced by previous work experience, with increased work experiences determining higher levels of reported comparisons with others.
5. In analyzing *gender* differences in personal goals self-assessment (Study 3b), we found that girls report more *involvement* and *ability/knowledge development focus* in the pursuit of their representative *professional goal* than boys. As research on gender differences in ecological personal goals assessment is scarce, these results can further on guide new lines of research, offering some tempting hypotheses. Can we advance a hypothesis of positive illusions constructed on coordinates of a mastery orientation? Further focus on gender differences regarding these dimensions will have to focus on the translation of goals into action and assessment of goal pursuits during action implementation. This will verify whether our findings reflect a behavioral tendency or just gender-specific positive illusions which frame a pursuit in terms of self-development.
6. The complex patterns of predictions brought forward in Study 4, indicate that personal goal dimensional indices have valid achievement goal and goal management correlates, which are differentially reflected in each dimensional index. The major aim of this study was to conduct an exploratory charting of personal goal dimensions, educational *achievement goal orientations*, and *SOC strategies* (elective selection, optimization, and compensation) which best predict each personal goal dimension. Results revealed novel relations between goal specific assessment and general strategical goal orientations, setting the stage for future research and applied interventions which can further analyze these relations. General achievement goals and SOC measures offer a global image on how individuals self-regulate their achievement and goal management pursuit. Hence, their prediction value for dimensions of idiosyncratic personal goals stresses the importance of linking global goal assessments with individual goal structures. This endeavor represents, in my opinion, an important link in constructing a complex picture on personal intentional goal structures in the transition to adulthood.



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