

TANJA SOPHIE SCHWEIZER

An Individual Psychology of Novelty-Seeking, Creativity and Innovation



AN INDIVIDUAL PSYCHOLOGY
OF NOVELTY-SEEKING,
CREATIVITY AND INNOVATION

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AN INDIVIDUAL PSYCHOLOGY
OF NOVELTY-SEEKING,
CREATIVITY AND INNOVATION

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T. Sophie Schweizer

Rotterdam, October 2004

To Friedlinde & Siegfried Schweizer

CHAPTER ONE

CREATIVITY AND INNOVATION IN THEORY AND PRACTICE: A CRITICAL OVERTURE

It is a very grave mistake to think that the enjoyment of seeing and searching can be promoted by means of coercion and a sense of duty.

Albert Einstein

The imagination imitates. It is the critical spirit that creates.

Oscar Wilde

1.1 WHAT DOES 'TO SUPPORT CREATIVITY AND INNOVATION' MEAN?

When W.D. Snodgrass won the Pulitzer Prize, his friend and colleague Anne Sexton found it necessary to send him a warning: 'To hell with their prize and their fame. You have got to sit down now and write more "real"...write me some blood. That is why you were great in the first place. Don't let prizes stop you from your original courage, the courage of an alien. Be still that alien, who wrote "real", when no one really wanted it.' (Sexton & Ames, 1977, pp.109-110). In another example the poet Sylvia Plath said: 'Editors and publishers and the critics of the world, (...) I want acceptance there, and to feel my work good and well-taken. Which ironically freezes me at my work, corrupts my nunnish labor of work-for-itself-as-its-own-reward' (Hughes & McCullough, 1982, p.305). In

yet another example, experiments have shown that individuals told to belong to a low performance group with respect to a particular task do a less creative job on that task (see for instance Seibt & Förster, 2004).

These examples indicate psychological effects of social comparison, judgment and support given to or withheld from individuals. Grants and awards rank high among society's tools to promote creativity and innovation. Surprisingly, they receive little attention in psychological research, especially their effects on the individual's well-being and ability to generate something new. Therefore one may ask how social support to creativity and innovation actually works. Before exploring this question, however, a more basic question might first have to be addressed: Is 'support to creativity' the same as 'support to innovation' or are they two fundamentally different things?

Researchers and practitioners disagree on the difference between creativity and innovation. Many even think they are the same. However, what has long been agreed is that innovation is crucial in our society- to such an extent that innovation has become an omnipresent word, a container term overused by managers and policy makers, maybe even a cult. Innovation is presented as a solution for such a wide range of problems that its meaning seems hopelessly overstretched. In mainstream management research and practice, innovation has reached the status of a competitive *sine qua non* with the quest for profit as locomotive (Geroski, 1994). However, although everybody talks about it, the phenomenon of innovation still seems poorly understood. Organizations announce innovation as a central part of their philosophies- nevertheless, the result of this seems to be rather poor (West, 2000). In popular management research and practice some of the essential requirements for innovation have not come into focus. This may be due to a tendency towards reasoning backwards from the profits that innovation may earn, instead of starting out with a concern for the well-being of the human beings who generate the novelties required for innovation in the first place. Innovation researchers often focus on the organization or industries as a whole, ignoring key psychological processes within and between human beings. What seems to have gone missing in the race for innovation is the awareness that 'a human being is actually an integrated hierarchy of biological, psychological, and social systems that adapt to changes in context' (Cloninger, 2004, p.xvi).

This book offers an integrated biopsychosocial approach in which the process of generating novelties consists of three basic components: Novelty-seeking behavior, creative behavior and finally, innovative performance. Whereas creativity is here defined as including the processes of finding a novelty and then transforming findings into observable products, the innovative performance of

an individual depends on the social judgment of others who may recognize this product(s) as novel. On the basis of such definitions ‘to support innovation’ is therefore very different from ‘support to creativity’. For instance, the objective to increase the innovative performance of individuals then mainly becomes a question of thinking about what could be improved at the interface between creative individuals and those who pass the judgment about their products. Several things can go wrong at this interface: For instance, creative individuals may be encouraged to find things, they themselves do not find new and exciting at all; they may be rewarded for findings they may not be able to defend in full personal integrity; they may be praised for having created something novel, while a single glance across the fence could make clear that it is not novel at all. In this interface between individual and those who evaluate one may think of juries who decide whether someone will receive a grant to carry out a project or whether someone will get an award. Surprisingly, we have no theory, let alone empirical evidence about the effects of grants and awards on the creativity and the innovative performance of individuals.

The motivation for writing this book and carrying out a large-scale quantitative study has mainly come from the following questions: First of all, how can a society support creativity and innovation, if practitioners and theorists are far from agreeing on what exactly these terms refer to, what are the differences between them, how these constructs can be measured, and how they relate to the well-being of the individual? Secondly, how can a society support creativity and innovation, if it is poorly informed about the effects of the tools it uses to support it? How can we know whether grants and awards really stimulate the creativity and the innovative performance of the individual? Finally, how about the hidden mechanisms such as stereotypes influencing the amount of support that society is willing to provide to different groups of novelty-seeking individuals? By maintaining specific stereotypes, the well-being of the stereotyped social groups may be seriously affected, and their creative efforts may either be paralyzed or overlooked.

In the following, the key streams of contemporary innovation and creativity research will be identified, briefly emphasizing their strengths and their problems. In the final section I briefly discuss the biopsychosocial approach introduced in this book, which may solve some of these problems and forms a foundation for filling the theoretical and empirical research gaps identified in this introductory chapter. The chapter ends with an overview of the dissertation.

1.2 THE THEORETICAL CONFUSION AROUND CREATIVITY AND INNOVATION

There seems to have come a point in the innovation literature where virtually everything, which is related to something ‘new’ has received the label ‘innovation’ or has been subsumed under the term, among them most notably: creativity, discovery, entrepreneurship, adoption, diffusion, organizational change, novelty, improvement, advance, modernism, modernization, originality, newness and inventiveness. A similar accumulation is found in another body of literature, in which the same constructs are subsumed under the header of ‘creativity’. Meanwhile, where these two literatures intersect, the differences and relationships between creativity and innovation remain vague.

Roughly speaking three research traditions are concerned with creativity and innovation: One is the psychological research tradition exploring creativity (see for instance Amabile, 1996; Robert J. Sternberg & Lubart, 1999); the other comprises a smaller group of organizational psychologists who have recognized the need for a psychological approach to work and organizational issues around creativity and innovation (Anderson, De Dreu, & Nijstad, 2004; King & Anderson, 2002; West, 2002; West & Farr, 1990). They explicitly contrast themselves away from a third group consisting of popular innovation management researchers:

While some more popular management research continues to use atheoretical case studies of in situ innovation processes as they unfold over time, research designs employed by organizational psychologists have been more sophisticated and have undoubtedly strengthened the reliance that can be placed upon their key findings (...). The cautious, multivariate, and sometimes longitudinal stance of organizational psychologists active in innovation research starkly contrasts against the mass of more popular texts in the management sciences which have extolled the virtues of unfettered innovation support and have exhibited an unashamed ‘pro-innovation bias’. (...) Innovation processes are far from the simple, linear, stage models such as those propounded in popular management texts. (Anderson et al., 2004, p.152)

Innovation management writings often represent a rather interdisciplinary mix with influences from economics, sociology and also psychological terminology used here and there— for a recent example I refer the reader to the *International Handbook of Innovation* (Shavinina, 2003a). In terms of quantity, the majority of innovation research probably still comes out of business schools, which is

an unsatisfying situation. Apart from the methodological weaknesses mentioned above, also definitional problems are frequent. Some innovation management researchers unnecessarily complicate innovation research by suggesting definitions referring for instance to ‘a special kind of innovation in children and adolescents, namely inventiveness’ (Shavinina, 2003b, p.6). This is only one of many examples illustrating the confusing use of the above synonyms in the management literature.

In my opinion one of the key problems in this research field is that the theoretical difference between the constructs of innovation and creativity has not been fully and consistently defined- with serious theoretical and empirical consequences: For instance, it is often unclear in innovation and creativity research which of the two processes the hypotheses refer to that are presented by researchers. While they may be likely to be confirmed with respect to the creative process, they need not apply to the process in which innovative performance is generated. Some argue that creativity and innovation are basically the same, but that on the organizational level the term innovation is used whereas on the individual level the term creativity is used (Robert J. Sternberg & Lubart, 1999). However, creativity and innovation are not the same phenomenon. In the following chapter the difference will be thoroughly laid out on the basis of the major sub-disciplines of psychology. It will then become clear why it is unnecessary and confusing that a range of creativity types first presented under the header of creativity (R.J. Sternberg, 1999) is later presented in another outlet under the header ‘types of innovation’ (R.J. Sternberg, Pretz, & Kaufman, 2003).

‘Organizational innovation’ has been defined as ‘novelty that is useful’ - that is the process of bringing novelty to use (Amabile, 1996; Glynn, 1996, p.1082). Similarly, innovation has been considered as a process of commercializing an invention (Rickards, 1991). Such definitions already indicate to some degree that a complex process takes place before a new idea or novelty receives the social label of ‘innovation’. However, it has received little attention that the processes of commercializing something can be considered as *only one specific* expression of the social judgment process, in which the market in an impersonal mechanism actually generates a judgment about a product. There are a number of other- interpersonal as well as impersonal- processes of social comparison and judgment to be discussed in this book. Processes to do with the finding of novelty as well as the production of these findings will be subsumed here under the header of ‘creativity’, while innovation will be looked at as only comprising those aspects of the novelty generation process to do with social comparison and social judgment leading to some form of social recognition of a novel quality of

a product. Only variations in the latter process deserve to be labeled ‘types of innovation’, for instance, if a novelty is judged as radically different it is rightly labeled a ‘radical innovation’.

Most importantly, all definitions starting with “an innovation is something novel/new...” are highly problematic, since they ignore that “innovation” is only the label given to something that is ‘judged as new’. Business reality and also the arts and the sciences provide sufficient examples of cases in which objects are announced as ‘innovative’ while it is only a well-oiled social machinery building reputations for particular producers of something that may not be new at all, but is simply re-introduced. Clearly, a definition of innovation is needed that also holds for these- not infrequent- cases where something non-novel is judged as novel and labeled an innovation. In this respect, definitions starting out like ‘an innovation is something that is judged as novel by....’ are far less problematic.

In the field of Organizational-Industrial Psychology these definitional problems have not yet been solved either; however, valuable contributions have been made, particularly on creativity and innovation at the group-level (Anderson & West, 1998; Diehl & Stroebe, 1987; Nijstad & De Dreu, 2002; Nijstad, Stroebe, & Lodewijk, 1999; Stroebe & Diehl, 1994). Especially on methodological issues recent work and organizational psychology research has been a key source of helpful suggestions: Anderson, de Dreu and Nijstad (2004) critically investigated the use and value of different innovation measures in previous innovation studies. The use of self-report measures and supervisor report data is rightly criticized and the need for more unobtrusive measures is emphasized, which also include archival data and behavioral counts. They especially advocate the use of multi-rater instruments for innovation measurement as well as the combination of different measures. The authors strongly emphasize the need for longitudinal studies pointing to the importance of multi-level innovation processes developing over time. Furthermore, attention is drawn to the possibility that certain factors may affect innovation positively at one level while they may have a negative effect on another level. Also, they encourage treating innovation as an independent variable for a change, instead of solely as an outcome variable.

Widely accepted among organizational psychologists is West and Farr’s definition of innovation as:

...the intentional introduction and application within a role, group or organization of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, the organization or wider society (West & Farr, 1990, p.9).

Definitions in more recent writings are in line with this 14-year-old definition: ‘creativity is the development of ideas while innovation implementation is the application of ideas. (...) Innovation is therefore the introduction of new and improved ways of doing things at work. (...) Innovation is restricted to intentional attempts to bring about benefits from new changes...’ (West, 2002, pp.356-357). However, are processes of introduction, application or implementation not in their core simply the *adoption of innovations*, which needs to be clearly distinguished from innovative performance itself? Adoption processes have a separate body of literature dedicated to them. So, why label adoption processes ‘innovation’? It does not help to extend the coverage of the term innovation in such a way. As noted by other organizational psychology researchers, this definition has further limitations (King & Anderson, 1995): For instance, it is problematic to include the conditions of a significant benefit into a definition of innovation. Would that mean that innovations that do not turn out to be beneficial no longer merit the label of ‘innovation’?

The terms ‘creativity’ and ‘innovation’ have been distinguished with respect to the settings and/or levels in which they occur: ‘creativity is more a characteristic of individuals, while innovation implementation tends to be accomplished by groups, organizations or societies’ (West, 2000, p.43). However, on the basis of such an approach researchers quickly come to use the terms creative and innovative interchangeably, although they originally distinguished the two. This happens for instance in research settings where individuals are creative within organizations or teams:

Group or team innovation occurs when a diverse group (in terms of knowledge, skills and abilities) experiences both high external demands and high levels of internal integration and psychosocial safety. Groups will be creative primarily when their task is sufficiently interesting, motivating and challenging and when the group feels safe to its members- (...). Diversity is necessary to ensure there is sufficient difference and richness of input to encourage creative and innovative outputs. (...) innovative individuals don't just have creative ideas, they also implement them. These are people who have a preference for thinking in novel ways; they think globally instead of locally (...) escaping the bounds of conventional thinking (West, 2000, pp. 44-46).

The latter characteristics (unconventional thinking and preference for novelty), here attributed to the ‘innovative individual’, are usually subsumed under the

header of creativity in the literature, not innovation. Very useful for solving such definitional problems around the constructs of creativity and innovation is the notion of 'relative novelty' as opposed to 'absolute novelty' (Anderson & King, 1993). As will be discussed in the following chapter, innovation is all about 'relative novelty', that implies that social comparison and social judgment processes have taken place by relating something judged as a novelty to other objects.

Furthermore, the strong focus of the current creativity and innovation literature on groups and teams within organizations comes with particular research issues such as group polarization, leadership, group decision-making, productivity loss in groups. In this creativity research agenda individuals are neglected who are only very loosely related with organizations, for instance like literary writers who seek the affiliation of a publishing house. In such contexts the creative individuals simply seek the service of an organization rather than working for it. This dissertation focuses on this specific type of professionals who can be found in any novelty-seeking profession, for instance in the pure or the applied arts and sciences. There have always been artists and scientists who preferred to work more independently from any kind of institutional settings. There are of course research issues that are more relevant in such a more individual setting than in group/ organizational settings. These will most likely be the ones neglected in the current mainstream creativity research agenda. For instance, the issue of grants and awards is far more relevant to the creative individual rather than the groups and organizations in which creative behavior takes place. The current group/organization focus of the psychological literature on creativity may be one reason why grants and awards have not been paid attention in the psychology literature. This book first of all seeks to provide an individual work psychology next to a social psychology of the novelty generation process- while the social psychology particularly comes in when others influence this process, for instance by the support they would like to give to it. Also, this book seeks to establish a legitimate place for the phenomena of grants and awards in the psychological literature. The field that is probably closest to what grants and awards are is the literature on social support.

1.3 A PSYCHOLOGICAL MODEL TO DISTINGUISH NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE

1.3.1 CLOSING THEORETICAL GAPS IN RESEARCH ON THE NOVELTY GENERATION PROCESS

The sub-disciplines of psychology that treat various subject matters involved in creativity and innovation offer a rich source of theoretical tools to distinguish the two constructs clearly. However, it appears that till the present day creativity and innovation researchers have used only a fraction of the psychological insights available to deal with phenomena of creativity and innovation. It has often been lamented that the psychology discipline fails to transfer knowledge across its sub-fields (see for instance Seijts & Latham, 2003). This failure could also impede advances in psychological research on creativity and innovation. A combination of insights from the neuropsychological/biological, social psychological, personality and psychodynamic research traditions may provide a better understanding of the differences and relationships between novelty-seeking, creativity and innovation.

What seems to be lacking in creativity and innovation research is a theoretical model that clearly distinguishes novelty-seeking from the creative process (that is novelty-finding and then producing it), and from innovative performance (related to the social recognition of a novelty). Such a model of the novelty generation process would then be based on a non-reductive paradigm integrating the natural and the social science wings of psychology: To start with, *novelty-seeking* is a dopamine-modulated psycho-physiological construct and a temperamental trait (Cloninger, Svrakic, & Przybeck, 1993), which is in this book presented as the principal ingredient of novelty-seeking behavior and precursor of creating something novel. Interestingly, the concept of novelty-seeking has hardly been paid attention to as a key input factor to creativity and finally also innovative performance. Apart from that, drawing on social psychological theories on social comparison and social judgment, ‘innovative performance’ will be defined. Here, the actual moment of social judgment, which also includes processes of comparisons with others in the environment, becomes the one and only qualifying moment for the label ‘innovative’ to come into use. The processes left in between novelty-seeking and innovation, fall under the header of creativity: the finding of novelty as well as the process of turning the finding into a product presentable to others.

Why distinguish novelty-seeking, creativity and innovative performance in a new model? Most importantly, these distinctions allow researchers and practitioners to identify more accurately the switches where dysfunctions may occur, be they psychological or economic. On this basis more fine-grained and adequate support forms for each of these three processes can be identified: we can then clearly distinguish the stimulation of novelty-seeking and creative processes from the stimulation of innovative performance. Support measures concerning the finding and producing of novelties then fall under the header of ‘support to creativity’, while ‘support to innovation’ includes those kinds of support that affect the social comparison and judgment processes. The role of granting and awarding procedures can then be explored with respect to these different processes passed by the individual in the process of generating a novelty.

On the whole this book this supports a view in which creativity and its consequences are considered as natural by-products of an individual’s striving for well-being or the maintenance of it (Cloninger, 2004). Among others, well-being results from the satisfaction of a number of needs such as the need for cognition, the need for a self-understanding in the creative process, and the need to fit into a bigger social picture in which the creative process is recognized by others.

1.3.2 CLOSING EMPIRICAL GAPS WITH RESPECT TO THE NOVELTY GENERATION PROCESS: THE EXAMPLE OF AWARDS AND GRANTS

A theoretical distinction between novelty-seeking, creativity and innovation may help understand the effects of social support on each of those components of the novelty generation process. Awards and grants can be perceived as a form of social support by their receivers. They embody social influence and social judgment processes that affect the support receivers in their process of generating novelties. As specific forms of social support they have been neglected in social sciences research. Knowing how to handle grants and awards would be useful for various kinds of institutions (such as publishing houses or award and grant juries) in adequately supporting highly novelty-seeking individuals. This includes help to transform their novelty-seeking and creative potential into innovative performance. Such knowledge could also assist policy-makers in governments and other public institutions to draft more fine-grained support policies and be more aware of their potential effects.

In-depth understanding of these support forms is important for those who

confer them, and also for those who receive them. The receivers are individual producers who seek to affiliate themselves to organizations to benefit from their services for production and proliferation of their content, for example the artist who seeks the affiliation to a gallery, the writer bonding with a publishing house, the inventor seeking contact with a business organization, and the scientist affiliated to a university or research institute. More in-depth psychological knowledge about grants and awards could create awareness in their receivers of potential psychological effects that they may need to counterbalance.

Art and Science are the fields where novelty-seeking, creativity and innovation *is* tradition. Research on the novelty generation process and the types of support that affect this process benefit these professions in the first place. Novelty-seeking of course can occur in any occupational field, but in these professions it is essential: a new scientific finding, a new artistic style or style movement, new objects made by inventors. The individuals subject to this research are those working in novelty-seeking professions. However, such theoretical and empirical studies may also serve professions where novelty generation is not traditionally the essential feature, but where its importance has risen sharply. Historically, the share of novelty generation for instance in being a shoemaker was much smaller than in today's fast and competitive environments where seeking new contents, styles and designs has become a far more important objective in many professions. One might study the effects of grants and awards in research projects that combine theoretical insights on the psychology of the novelty generation process with empirical evidence on extended time periods, for instance on the novelty generators' innovative performance under social support conditions such as receiving grants and awards.

1.3.3 AN OVERVIEW OF THIS DISSERTATION

This dissertation builds on three psychological sub-disciplines: social psychology, work psychology and neuropsychology. Given the theoretical as well as empirical gaps discussed in this introduction, I have opted for a Gestalt that presents this dissertation in two parts differing in scientific style: The first part of the thesis is aimed at theory building and contains focused literature reviews and a conceptual analysis. It addresses questions like: How does novelty-seeking behavior relate to creative behavior and the innovative performance of an individual? Which types of support, and in particular which types of grants and awards support these different processes involved in the generation of a

novelty? In contrast, Part II presents an empirical analysis based on positivistic research methods and addresses only a modest subset of the issues and variables discussed in the theoretical analysis of Part I, formulated as hypotheses on the relationships between the receiving of grants and awards on the one hand and the innovative performance of the receivers on the other. Part I is much broader in scope and intends to generate research questions that reach much further than the hypotheses tested in the empirical part II.

Part I

The Process of Novelty Generation: A Theoretical Analysis

In *Chapter Two ('The Psychology of Novelty-Seeking, Creativity and Innovative Performance')* definitions of novelty-seeking, creativity and innovation are suggested on the basis of a theoretical analysis drawing from psychophysiology, cognitive neuropsychology, personality and social psychology, as well as a psychodynamic approach and clinical neuropsychology. The *Novelty Generation Model (NGM)* is introduced which relates novelty-seeking, creativity and innovative performance to each other. This model serves as a basis for the following chapters in which a better understanding is sought as to how the novelty generation process can best be supported in its different components. The empirical focus will be on the innovative performance component. While Novelty-Seeking and Creativity are also key components of the model, for scope reasons they are not intended to be tested empirically in Part II. However, that does not diminish their scientific relevance in Part I.

Chapter Three ('The Psychology of Social Support to Novelty-Seeking, Creativity and Innovative Performance') builds on the Novelty Generation Model and presents a social psychological framework of support to novelty-seeking, creativity and innovative performance. Social support, which may be obtained from *interpersonal* and *impersonal sources* works either directly on the novelty generation process or indirectly via activating the *self-support* of the individual (linked to personality and genetic patterns). Different types of support are discussed. The focus is on *instrumental support* (such as material/financial aid) and *validation support* (social esteem, affirmation). Different modes of support transmission are distinguished ranging from *positive support* to *negative support* through social resistance and negative stereotypes. This chapter focuses on specific impersonal support forms that have been neglected in the social sciences up to now: *awards* and *grants*. A typology of awards and

grants is offered on the basis of the social-psychological literature presented in chapter two and three. Hypotheses are suggested on the relationships between these specific impersonal support forms and the different components of the novelty generation process.

Chapter Four ('Social Support and Negative Stereotypes in the Novelty Generation Process') identifies a whole range of stereotypes, which influence the novelty generation process. On the individual level the gender and the maturity stereotype are examined in more depth. On the organizational level, the organization size-stereotype is investigated, which negatively influences an organization's reputation for innovativeness and indirectly also the innovative performance of the novelty-seeking affiliate. The chapter concludes with a number of hypotheses on the relationships between negative stereotypes, social support and the novelty generation process.

Chapter Five ('Closing Part I: The Novelty Generation Model and Future Research') concludes Part I with a discussion of the NGM introduced in this book as a basis for two potential streams of future research on novelty-seeking, creativity and innovation. The first is at the crossroads of social psychology, work psychology and neuropsychology with the well-being of the novelty-seeker at its center. The second research stream is only briefly described since a first step in this direction is presented in the following empirical part testing the hypotheses generated in chapters three and four.

Part II

An Empirical Study Of Grants, Awards And Innovative Performance

Chapter Six ('Industrial and Organizational Specificities of Novelty-Seeking Professions') is meant to bridge the broader theoretical part and this far more narrow empirical part on the effects of awards and grants on the innovative performance of novelists and poets. To start with, insights from the previous chapters are applied to an industrial and organizational psychology for highly novelty-seeking professions such as Art and Science. Typically, individuals in highly novelty-seeking professions support their occupational activities by affiliating themselves to service-providing institutions, such as universities, research institutes, galleries, or publishers. Supposedly it is artistic and scientific work where the most novelty-engendering processes of human thinking take place and therefore they represent first-rate empirical fields for the study of novelty-seeking, creativity and innovation. A brief profile of the empirical field

is presented in which the hypotheses are tested: *Literary publishing*. A short case study of an extraordinary award event in the literary publishing industry is used as a brief introduction to the quantitative research presented in the next chapter.

Chapter Seven ('Grants, Awards and Innovative Performance in Literary Publishing: Data, Results and Discussion') presents and discusses the results of a large-scale cross-sectional study and a longitudinal study. Individual and organizational level hypotheses on grants and awards are tested with respect to various performance measures (on the individual level: innovative performance, productivity and proliferation performance). Data were collected on 3189 grants and award events involving 1348 literary authors in the German-speaking publishing area (Austria, Germany, Switzerland) during the years 1995-2000. Apart from the financial and validation support data for each grant/award event, data were also collected on the winners' gender, publications before and after award/grant events within the period 1993-2001 as well as all their organizational affiliations (N= 1403) during this time period. An additional dataset was generated to obtain a multi-rater innovative performance measure for the grant and award-winning authors: A jury consisting of 41 top literary publishers was selected and administered a questionnaire in order to obtain this measure.

Chapter Eight ('Closing Part II: Implications of the Empirical Study and Research Outlook'). This brief chapter offers conclusions on the empirical evidence presented in Part II, the limitations of this study as well as implications for theory and practice and future research in this specific research area of grants, awards and innovative performance.

PART I

THE PROCESS OF NOVELTY GENERATION: A THEORETICAL ANALYSIS

CHAPTER TWO

THE PSYCHOLOGY OF NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE

Curiosity is, in great and generous
minds, the first passion and the last.

Samuel Johnson
(*The Rambler*, no. 150, 24 August 1751)

2.1 WHAT DOES IT TAKE TO GENERATE A NOVELTY?

What motivates human beings to seek the new? What motivates human beings to transform their novel findings into visible products? What motivates them to expose their products to the social judgment of other human beings? Various psychological research findings, from the subject matter of neuronal activity to social influence in general can help to explore these questions. However, only a fraction of these findings has been used: It is as yet far from clear in the literature that creativity and innovation are two completely different processes. Also, something is not mentioned in the scientific debate – something, which precedes creativity and innovation in novelty generation: novelty-seeking behavior. Finally, it has not yet been laid out clearly which motivational states, temperaments and personality set-ups optimally define these three different processes.

In this chapter I will discuss the existing literature and propose a new model, the *Novelty Generation Model* (NGM) (section 2.4). This model includes a personality and neuropsychological construct called *novelty-seeking* which has hardly been paid attention to in research on creativity and innovation. In

some human beings the need for novelty is higher than in others. Also their capacity to satisfy these needs (that is *to find* novelties) is subject to individual differences. The relationships between novelty-seeking, creativity and innovation are examined. These different processes underlying the generation of a novelty unfold along the simple test question “who perceives something as novel?” At first only the individual perceives something as novel. Later, others may judge likewise and social pressures related to innovation come into play. As will be seen in this chapter, many creativity researchers do not distinguish between creativity and innovation and this causes unnecessary confusion.

The Novelty Generation Model (NGM) rests on theories from the major sub-disciplines of psychology. These include psycho-physiological/neuropsychological (see section 2.2), personality (section 2.3), psycho-social and social cognition (section 2.5), psychodynamic (2.6) and clinical neuropsychological components (2.7) of the novelty generation process. The model seeks to better understand how novelty-seeking, creativity and innovative performance are related. Some researchers remind us that ‘the genome operates within the context of the cell, the cell within the context of the body, the body within the context of the self, the self within the context of society, and society within the context of the cosmos’ (Cloninger, 2004, p.313). Likewise, the NGM tries to relate biological, neuropsychological and social psychological studies for a better understanding of novelty-seeking, creativity and innovation.

2.2 WHAT GENETICS, COGNITIVE NEUROSCIENCE, NEUROPSYCHOLOGY AND PSYCHO-PHYSIOLOGY HAVE TO SAY ABOUT NOVELTY-SEEKING AND CREATIVITY

The mind in creation is a fading coal,
which some invisible influence, like
an inconstant wind, awakens to a
transitory brightness.

Percy Bysshe Shelley

Being a ‘creative genius’ has been argued to emerge from configurations of multiple genes all interacting with each other (Lykken, McGue, & Tellegen, 1992). Apart from that, this genetic basis can be modified by environmental influences such as a variety of physical, social and educational experiences (Simonton, 1999).

Speaking in terms of neuroscience, novelty-seeking can be classified as an

executive function, which ‘refers to the set of higher-level cognitive operations that are essential for the production of goal-oriented behavior. Executive functions involve the maintenance and manipulation of information that is essential for dealing with situations in which the appropriate response is not dictated by the current stimulus information. They include processes such as working memory, goal representation and planning, response monitoring, and error detection’ (Gazzaniga, Ivry, & Mangun, 2002, p.G-4). Goal-oriented behavior ‘allows us to interact in the world in a purposive manner. Goals reflect the intersection of our internal desires and drives, coupled with the current environmental context’ (ibid: p.G-5).

The biological bases of novelty-seeking are first of all genetic, that is, they are dependent on chromosomal specificities. Secondly, novelty-seeking may have metabolic causes (that is specific to the body’s breakdown or production of chemicals such as neurotransmitters or hormones). Individual differences in receptors for neurotransmitters, which in turn affect other neurons, have the potential to alter our behavior and ultimately also what we call “personality”. Relationships can be established between the behavioral state of novelty-seeking and particular physiological states by identifying the specific chemical and neural inputs of the brain to novelty-seeking behavior. Novelty-seeking personality has been postulated to be modulated by the transmission of the neurotransmitter dopamine (Cloninger, 1994; Cloninger, Svrakic, & Przybeck, 1993). The role of dopamine has demonstrated in pharmacological experiments on the rewarding effect of drugs (Wise & Rompre, 1989).

Researchers have identified genes (DRD4 & DRD2-A2), labeled as ‘novelty-seeking genes’ (Benjamin, Ebstein, & et.al., 2002; Benjamin, Li, Patterson et al., 1996; Ebstein, Novick, Umansky et al., 1996; Keltikangas-Järvinen, Elovainio, Kivimäki et al., 2003; Noble, Ozkaragoz, Ritchie et al., 1998; Prolo & Licinio, 2002). They control the development of dopamine receptors or dopamine transporters in humans and therefore influence dopamine levels. High dopamine levels manifest themselves among others in more frequent exploratory activity and strong reactions to reward stimuli and conditioned stimuli, as well as activated systems for obtaining reinforcement and an increased rate of self-stimulation. A link between a dopamine transporter gene (SLC6A3-9) and novelty-seeking has been found. This gene controls the production of a membrane protein responsible for the reuptake of the neurotransmitter dopamine after its release. Individuals whose genotype does not include this particular gene have been found to display high levels of novelty-seeking (Hamer, Sabol, Nelson et al., 1999; Lerman, Audrain, Main et al., 1999). The reuptake of dopamine in the

brains of individuals born without this gene is relatively slow. This means that they are exposed to stimulation by dopamine for longer time-spans, and display higher levels of novelty-seeking behavior.

However, findings about single genes are often inconsistent. This is also the case with this so-called novelty-seeking gene (Kluger, Siegfried, & et.al., 2002; Schinka, Letsch, & et.al., 2002). How genes are expressed in the phenotype of an individual depends on many factors. Substantial evidence suggests that the development of a novelty-seeking personality depends on the nonlinear effects of gene-gene interactions (Strobel, Lesch, & et.al., 2003), and gene-environment interactions (Keltikangas-Järvinen, Raeikkoenen, & et.al., 2004). For instance, the likelihood of higher Novelty Seeking to occur in adults with the two-repeat and five-repeat alleles of the exon III DRD4 polymorphism was found to be increased, if individuals had experienced a hostile childhood environment such as maternal emotional distance and a strict authoritarian disciplinary style with physical punishment. The adult novelty-seeking scores were found to be low in individuals who were reared in a kind and cooperative environment (Keltikangas-Järvinen et al., 2004). The mechanisms which regulate the expression of genes are studied in epigenetic research (Von Sternberg, 2002). A number of factors and mechanisms which may regulate a novelty-seeking genetic basis will be discussed in the course of this chapter.

For a better understanding of novelty-seeking and creative behavior it may be helpful to consider that ‘brain microstates are changing connections between a succession of neurons that are in different epigenetic states’ (Cloninger, 2004, p.271). The regulation of gene expression by personality can be said to be ‘mediated by nonlinear adaptive systems made up of multiple genetic and environmental factors’ (ibid. p.303). It is not yet clear how the DRD4 locus is associated with creativity in interacting with other genes. At least it can be said that ‘(...) the variant alleles of the DRD4 locus appear to modulate individual differences in aspects of self-aware consciousness, like creative and contemplative personality traits (...)’ (ibid. p.304).

It has been found that rewarding behaviors such as novelty- drug-, and food-seeking are associated with increased dopaminergic activity in the neurons of the *nucleus accumbens*, informally called the ‘pleasure center’ of the human brain (Dellu, Piazza, Mayo, Le Moal, & Simon, 1996). The nucleus accumbens is located in the *basal ganglia* and connected with the *mesolimbic dopamine pathway*. It has been related to the release of dopamine activated by various addictive drugs (Koob, 1992). Given the above clear link between novelty-seeking and this dopamine pathway, it comes as no surprise that drug addictions

more often occur in above average novelty-seekers (Kravitz, Fawcett, McGuire, Kravitz, & Withney, 1999). Indeed, the use of stimulants of dopamine activity in the central nervous system such as cocaine, amphetamine, nicotine or caffeine is high among scientists and artists, classified in this book as novelty-seeking professionals (see chapter six). These are techniques of self-stimulation by means of drugs and I would like to call them the 'biotechnologies of the novelty-seeking professions'. Substances like nicotine or cocaine may produce altered and even abnormal patterns of behavior. In professions where finding the new or the different is set as the standard (Luhmann, 1995), such forms of abnormal behavior are far more appreciated than in less novelty-seeking professions. Led to extremes, the usage of such biotechnologies falls into the clinical realm and will therefore be discussed in more detail in a later section of this chapter (2.6. 'The Health of the Novelty-Seeker: A clinical neuropsychology perspective'). In sum, the intense search for stimulating experiences, be it via drugs or other experiences is typical behavior for above-average novelty-seekers.

There are also relationships between dopamine and other neurotransmitters within the group of monoamines: norepinephrine, epinephrine and serotonin. Our body combines the activity of these neurotransmitters in our nervous system to produce complex behavior such as novelty-seeking. For instance, a lack of serotonin, which leads to a depressed state, has been associated with enhanced dopaminergic activity. At the same time, depressed individuals are said to feel too little energy to perform proactive behaviors such as searching for the new. The synthesis of these neurotransmitters starts on the basis of substances which the human body finds in daily food and drink, which means that human beings might also influence their novelty-seeking by the choice of foods.

Some research on novelty-seeking behavior is carried out with rats. The performance of 'high versus low responders to novelty' has been tested (Tuinstra, Cobelens, Lubbers, Verheij, & Cools, 2002). Rats responding highly to novelties can be distinguished from rats with a lower response to novelty by measuring the duration of the period from when a rat starts to explore an open field until its locomotor activity (physical movement) stops, as well as the overall distance the rat travels in the maze. Rats which explore new fields, and travel longer distances in the maze, are classified as more highly 'novelty-responding' (Saigusa, Tuinstra, Koshikawa, & Cools, 1999). The term novelty-seeking is used interchangeably with the terms 'reward seeking' or 'exploratory behavior'. However, in contrast to rats, a novelty-seeking temperament in humans is subject to complex cognitive processes, that may modify, divert, invert and even pervert an individual's tendency to seek novelties, and- arguable the most important

difference- in humans novelty-seeking may precede creative behavior. Of course, ‘the biological reality of self-aware consciousness is what distinguishes human beings from all other animals’ (Cloninger, 2004, p.60).

Creativity researchers have hardly paid attention to novelty-seeking, but have focused on other physiological and cognitive aspects instead. Empirical support has recently been presented that confirms the hypotheses that a reduced *latent inhibition (LI)* is linked with higher creative achievement (Carson, Peterson, & Higgins, 2003). LI is the capacity of the brain to ignore stimuli outside the current focus of attention, which are experienced as irrelevant. In other words, low LI individuals continuously experience a higher number of stimuli because they ignore less than those with average LI scores. Links between this research and research on novelty-seeking have not yet been established. A relationship between latent inhibition and creativity was suggested in Eysenck’s model, which builds on the interaction between dopamine and serotonin in the hippocampal formation (Eysenck, 1995). The latent inhibition argument combines well with the theory that a greater number of available mental elements indicates a higher likelihood for creative discovery (Simonton, 1988). Furthermore, in in-depth neuropsychological research on latent inhibition the novelty-variable has been mapped onto the dopaminergic projection to the nucleus accumbens (Schmajuk, 2002).

Creativity can either be seen as a particular kind of response style (MacKinnon, 1962) or as a particular ability for problem-solving (Cattell, 1971). At the core of creative behavior are problem-seeking, problem-finding and problem-solving activities (Getzels & Csikszentmihaly, 1975; Glover, 1979; Kasperson, 1978). Dillion (Dillion, 1982) argues that problem-finding involves three activities of different degrees of complexity: first and least complex is the identification of an obvious problem, second is the discovery of a problem through data investigation, and thirdly, the *invention of a problem* through rearranging its central elements. It can be argued that the more novelty-seeking an individual is, the higher the likelihood that the invention of a problem takes place. Finding solutions to such problems represent the highest levels of creative performance. It has been suggested that research on creative cognition can best ‘identify traditional areas in cognitive psychology and cognitive science that could be explored in a more creative way, such as mental imagery, concept formation, categorization, memory retrieval, analogical reasoning, and problem-solving’ (Finke, Ward, & Smith, 1992, p.189). To their list I should like to add the area of attention. In order to find something new, paying attention seems essential. Finke and colleagues provide a number of studies revealing general

principles of creative cognition and model the pattern how the new is created. According to their model, 'in forming creative ideas, one may initially generate structures that seem interesting or meaningful in a general sense and then consider their various implication during an exploratory phase. (...) [A] *preinventive structure* is generated, and a creative discovery is then inspired by the structure' (pp.190-191) by means of different exploratory strategies. They mention two principles : First, if the preinventive structures are perceived under conditions of the least possible interpretive constraints, the likelihood of creative output is higher. Secondly, it is argued that incubation leads to release from fixated memory retrieval strategies. They argue that some creative cognition skills are universal cognition skills, and thereby refute the myth of the creative genius. However, the question remains, how the usage of these skills is influenced by a high or a low novelty-seeking tendency as described above. It may be argued that highly novelty-seeking individuals are more able to 'escape' how they used these structures earlier (Van de Braak, 2002; Walker, 2000).

Finally, creative thinking has been argued to involve 'intuitive leaps, that are facilitated in the higher stages of self-aware consciousness (Cloninger, 2004, p.329). Cloninger distinguishes different levels of self-aware consciousness and discrete microstates of thought based on psychophysiological studies. He considers creative thinking as a phenomenon facilitated by contemplative thinking that is only achieved on the highest level of self-aware consciousness, a state 'distinguished by the quantum or quantum-like properties of nonlocality and noncausality' (ibid., p. 349). This level of thought is physiologically marked by EEG theta and delta activity (p.253). Creativity has been associated with increased frontal EEG coherence (Alexander, Davies, & et.al., 1990). Individual differences in reaching this highest level of self-aware consciousness also show in the individual's TCI-scores in the dimension of Self-Transcendence (as explained in a later section).

From a physiological perspective low levels of cortical activation, more right than left hemisphere activation and low levels of frontal-lobe activation were found to accompany the state of creative inspiration (Martindale, 1999). This implies that creative inspiration is highly unlikely to occur during periods of stress. This low arousal hypothesis for inspiration combines well with the arguments of cognitive scientists that a low speed of thought is at the root of inspiration (Claxton, 1997). It has been argued that one has to distinguish challenges that '(w)e meet with cleverness, focus and deliberation from those challenges that can only properly be handled with patience, intuition and relaxation' (ibid: p.6). He argues that a 'high-speed mental climate' is not the most conducive to gaining

new insights. How does this relate to the above-average novelty-seeker's need for stimulation discussed above?

There seems to be patterns of under- and over-stimulation in the creative process. On the one hand creative individuals experience the need for low arousal (Martindale, 1999) and on the other hand, they appear not to be stimulated enough by things which, for less novelty-seeking individuals, are sufficient to create the highest arousal. States of being 'over-focused' versus highly distracted may be more common in creative individuals than a more average state of concentration. This contradiction may be explained by an unstable dopamine regulation, which is also found in manic-depressive, or at least cyclothymic individuals, that is, individuals with mild to strong mood-swings. Such mood disorders were found common in novelty-seeking professionals, such as artists and scientists (see section 2.6.). It is remarkable that little attention has been paid to dopamine pathways in the creativity literature. A promising route in creativity research seems therefore to establish more in-depth relationships between dopaminergic functions and creative behavior and to try to establish the neuropsychological specificity for creative behavior and to study the brain activation patterns involving the nucleus accumbens and frontal functions during creative tasks. Also, one would like to study the interactions between dopaminergic and serotonergic circuits.

2.3 NOVELTY-SEEKING AND CREATIVITY IN PERSONALITY THEORIES

2.3.1 RESEARCH ON CURIOSITY AND NOVELTY-SEEKING

Personality theory has informed the majority of the creativity literature. In the 1960s Allport defined a personal disposition as a 'generalized neuropsychic structure (within the individual), with the capacity to render many stimuli functionally equivalent, and to initiate and guide consistent (equivalent) forms of adaptive and stylistic behavior' (Allport, 1961, p.373). Around the same time, Berlyne delivered his behavioral account on curiosity as a motivational state or drive, which makes us seek out novel stimuli. He distinguishes various types of novelty and different forms of exploratory behavior, including extrinsic versus intrinsic investigatory responses (Berlyne, 1960). Also, Berlyne distinguishes *diversive curiosity*, which includes the seeking of novelty or complexity driven by a state of boredom, from *epistemic curiosity* defined as driven by the need to

resolve uncertainty concerning perceptual or symbolic representation. Worth to be mentioned, are Pearson's novelty-experiencing scales (NES) from the 1970s developed around the construct *tendency towards novelty* as the behavior of approaching novelty contrary to avoiding novelty (Pearson, 1970). Also Berlyne wrote on human curiosity by stating that human beings seek physical and mental stimulation as soon as they have all their other needs satisfied. Then, human beings engage in play, seek distraction. This is the moment when they start to fight against boredom instead of fighting for the satisfaction of their needs (Berlyne, 1960, 1971). Later, Loewenstein (1994) reviewed various theories relevant for curiosity: drive theories, incongruity theories, based on violated expectations, and theories, that center around the concept of competence. Perceiving all these approaches unsatisfactory, Loewenstein suggested that the most adequate approach to curiosity lies in its similarity to a wider range of information-seeking which reflects the human need of sense making, or simply the human 'need to know' (Loewenstein, 1994, p.84).

An important distinction made in personality theories is the one between *trait curiosity* and *state curiosity*. Whenever people use terms like 'a curious nature', they actually refer to trait curiosity expressing that a person is novelty-seeking in general. State curiosity means that individuals are curious in a particular moment or situation in which they are evaluated. State curiosity also implies that curiosity or novelty-seeking may only occur when the environmental or social conditions allow for them. In various languages the translation of curiosity is literally 'novelty-seeking' for instance the German *Neugier*. Novelty-seeking and curiosity could be used as synonyms mostly when they are used as situational variables. Interestingly, apart from meaning 'novelty-seeking', the word 'curious' has also another meaning: if we label a person or an object as 'curious' we may describe this person as unusual, remarkable, bizarre or weird, which is also akin to the notion of someone displaying original, novel behavior.

Some individuals find it more difficult than others to remain in one position for long and easily get bored. The continuous need to move on from novelty to novelty and avoid boredom can be satisfied in various ways: U.S. statistics show for instance that 44% of individuals eat when they are bored, 27% go for a drive and 9% have a drink (Kanner, 1999). A smaller percentage of individuals can be assumed to fill it with seeking novelties in the arts and sciences rather than in food or beverage. They may spend their days cruising through libraries, reading or watching 'Discovery Science'. Novelty-seeking behavior does not mean to produce something novel, that is creating something. Novelty-seeking behavior is purely the absorption of novelties, which may serve as a pre-phase

for creative acts. Stimulation seeking is another synonym used in this context and 'is conceptualized as lying at the interface of exploration, curiosity, experience seeking, and sociability and is anticipated as predisposing one to have a sensation seeking personality as an adult' (Raine, Reynolds, Venables, & Mednick, 2002, p.672).

Taking a personality perspective on novelty-seeking requires personality inventories as assessment tools. Useful ones could be Cloninger's novelty-seeking scale (TCI) and Cacioppo's Need for Cognition (NC). Others which have sometimes been mentioned in the creativity literature are Zuckerman's sensation seeking scales and Costa and McCrae's Five Factor Model with its openness to experience dimension. They will all be described in the following sections.

2.3.2 NOVELTY-SEEKING IN CLONINGER'S TEMPERAMENT AND CHARACTER INVENTORY (TCI)

In their Temperament and Character Inventory (TCI) Cloninger and colleagues define *novelty-seeking* as a temperament factor which is 'viewed as a heritable bias in the activation or initiation of behavior such as frequent exploratory activity in response to novelty (...)' (Cloninger et al., 1993, p.977). Temperamental factors are those aspects of personality which 'involve automatic, pre-conceptual responses to perceptual stimuli presumably reflecting heritable biases in information processing (...)' (Cloninger et al., 1993, p. 977). Temperament has a strong biological underpinning and manifests itself early in an individual's life. The TCI contains 7 personality factors: Apart from novelty-seeking, three more temperament dimensions- Harm Avoidance, Reward Dependence, Persistence- and three character dimensions- Self-Directedness, Cooperativeness and Self-Transcendence. It will become clear in a later section that not only Novelty-Seeking plays a central role in the creative process. Novelty-seeking is modulated by some of the other factors.

'Individuals high in Novelty Seeking tend to be quick-tempered, excitable, exploratory, curious, enthusiastic, exuberant, easily bored, impulsive, and disorderly. The advantages of high Novelty Seeking are enthusiastic and quick engagement with whatever is new and unfamiliar, which leads to exploration of potential rewards. The disadvantages are related to excessive anger and quick disengagement whenever their wishes are frustrated, which leads to fickleness in relationships and instability in efforts. In contrast, individuals low in Novelty Seeking are described as slow tempered, indifferent, uninquiring, unenthusiastic,

stoical, reflective, frugal, reserved, tolerant of monotony, systematic, and orderly' (Cloninger, Przybeck, Svrakic, & Wetzel, 1994, p.22). A large-scale twin study found that the temperament factors novelty-seeking and persistence had a heritability between 50% and 65% (Heath, Cloninger, & Martin, 1994). Novelty-seekers represent a type of human beings who continuously learn and study and who perceive stagnation as an unpleasant state, whereas change, diverse interests and variation are perceived as pleasant states.

2.3.3 ZUCKERMAN'S SENSATION-SEEKING SCALES

Zuckerman's *sensation seeking* construct is often used interchangeably with the term novelty-seeking. 'Sensation seeking is a trait defined by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience' (Zuckerman, 1994, p.27). Sensation seeking is composed of the following factors: *Thrill and adventure seeking* (TAS), a preference for activities that are somewhat frightening, like parachuting or high speed driving; *Experience seeking* (ES) 'encompasses seeking of novel sensations and experiences through the mind and senses, as in arousing music, art, and travel, and through social nonconformity, as in association with groups on the fringes of conventional society (e.g. artists (...)); *Disinhibition* (Dis), which is sensation seeking through social activities like parties, social drinking and sex; and *Boredom susceptibility* (BS), which 'represents an intolerance for repetitive experience of any kind, including routine work, and boring people' (pp. 31-32).

Correlations between Zuckerman's sensation seeking and Cloninger's novelty seeking scales (NS in the TCI) are about 0.7 (Zuckerman & Cloninger, 1996). Table 11.3 in the TCI Manual also shows a study by Earlywine (Earlywine, Finn, Peterson, & Pihl, 1992) that shows NS correlations with subcomponents of the Sensation-seeking scales that were about .4 which is similar to correlations among subscales of the NS (Cloninger et al., 1994). Zuckerman found that sensation seeking was 'directly related to various tests of cognitive innovation, variety and originality' (Zuckerman, 1994, p.369) and also in a study on the relationship between creativity and sensation seeking, strong correlations have been found (Okamoto & Tokari, 1992). The other scales of sensation seeking represent the seeking of novelty more through physical sensations rather than through cognition. For the novelty-seeking professions such as science and art, the relevant type of novelty-seeking will be the cognitive one. This distinction

between sensation and cognitive novelty-seeking is already older. Pearson's novelty-experiencing scales (NES) (Pearson, 1970) were weakly correlated with Zuckerman's sensation-seeking scales. Pearson conceptualized internal (self-generated) and external sources of stimulation and distinguished sensation from cognition as two types of novelty experience. Not only with the Pearson scales but also with a number of studies, such as in the stimulus-variation seeking scale (Penney & Reinwehr, 1966) as well as the change seeker index (Garlington & Shimona, 1964), the sensation-seeking scales indeed correlate less to the cognitive and internal novelty-seeking scales of other personality dimensions, but more to the external and physical sensations. Among various types of novelty and sensation-seeking scales which focus on novelty-seeking with respect to cognitions rather than physical sensations are then to be favored for research on novelty-seeking in professions such as Science and Art.

2.3.4 'OPENNESS TO EXPERIENCE' IN COSTA & McCRAE'S FIVE-FACTOR-MODEL

Novelty-seeking temperament in Cloninger's TCI was found to be positively correlated with the openness dimension in the NEO Personality Inventory-Revised (NEO-PI-R) (Ball, Tennen, & Kranzler, 1999). The NEO-PI-R is a measure of the five-factor model of personality. Individuals scoring high on the openness dimension have been assigned personality facets such as curious, creative, original and imaginative (Costa & McCrae, 1992). The experience seeking items in Zuckerman's sensation-seeking scale have also been found to moderately correlate with the openness to experience dimension (Rawlings, Twomey, Burns, & Morris, 1998; Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993). Another study found a correlation between cognitive sensation-seeking with the facet 'divergent thinking' of the openness dimension (McCrae, 1987).

In the five-factor model an open individual is conceived as seeking experience for its own sake, in search for variety, is liberal and has broad interests. The openness factor measures breadth and depth of an individual's imagination, need for experiences and facets such as fantasy, aesthetics and ideas, which are all facets relevant to novelty-seeking and creative behavior. This includes items such as 'aesthetically reactive, values intellectual matters, rebellious, non-conforming' versus the non-openness end of the continuum including 'sex-role stereotyped behavior, favors conservative values, uncomfortable with complexities, judges in conventional terms' (p.657). Individuals with high openness have been described as displaying a high tolerance for ambiguities

and uncertainties and as attracted by novelty, and leading richer, more complex and unconventional lives. ‘Intellectual curiosity and openness to other values suggests a willingness to consider new ideas and reconsider existing values, as well as demonstrates a lack of dogmatism, (...) consistent with previously cited research that found highly autonomous individuals to be less prone to boredom and more open to expert advice’ (Hmel & Pincus, 2002, p.301). This comes with questioning authorities. Also the openness dimension has been related to trait creativity (McCrae, 1987), creative personality (Feist, 1999; Piedmont, McCrae, & Costa Jr., 1991), creative achievement (King, Walker, & Broyles, 1996) and cultural innovation (McCrae, 1996), though difference between creativity and innovation has not been explained.

2.3.5 NEED FOR COGNITION: THE MOTIVATIONAL BASIS OF NOVELTY-SEEKING BEHAVIOR

Strong cognitive needs can be expected to influence the degrees of novelty-seeking behavior displayed by individuals. The need for cognition (NC) scale (Cacioppo & Petty, 1982), has been found to strongly correlate with various measures such as openness and curiosity (Olson, Camp, & Fuller, 1984). Individuals scoring high on the need for cognition ‘naturally tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in their world’- whereas those scoring low on need for cognition are ‘more likely to rely on others (e.g. celebrities and experts), cognitive heuristics, or social comparison processes’ (Cacioppo, Petty, Feinstein, Blair, & Jarvis, 1996, p.198). The latter has also been referred to as the need for *cognitive closure* (see for instance Kruglanski, 1989; Mikulincer, 1997), which among others describes the extent to which individuals prefer to follow conventional steps on the basis of secure, long-standing knowledge instead of opening themselves up towards new information which may create confusion and ambiguity. This is in turn related to the concept of the ‘cognitive miser’ distinguished from the open, and curious individual with high cognitive capacity and richer cognitive resources. Individuals who refuse information rather than that they are open for new information can be called cognitive misers (Susan T. Fiske & Taylor, 1984). Individuals can be restrictive towards more in-depth information, and / or the breadth of information depending on the cognitive resources of this individual. The decision of individuals to be a miser on cognitive resources with respect to one domain and to be novelty-seeking in another is influenced by social mechanisms (see section 2.4). Cognitive needs will be discussed in more detail in section 2.5 from a psychodynamic perspective.

2.3.6 A CONSTRUCTIVELY CRITICAL VIEW OF THE CREATIVITY LITERATURE

One of the first psychologists to write about creativity as the ‘highest human faculty’ was Galton (Galton, 1883). Later, in the middle of the 20th century, Guilford argued that a creative nature is dependent on motivational and temperamental traits of an individual with divergent thinking as a key element (Guilford, 1950). In the course of the decades the term creativity has come to carry a wide meaning - including needlework such as crocheting and knitting and other handicraft - after all, the word ‘create’ is in its most basic meaning synonymous with words like ‘make’, ‘generate’, ‘craft’ or ‘produce’ something. However, for a scientific approach definitions of creativity have to be more precise.

It seems that the subtle differences between mere producing and novelty-producing are hardly paid attention to in the creativity literature. In what has become a key reference in the creativity literature, Sternberg and Ben-Zeev (2001) discuss various types of creative contributions. They also include ‘replication’ as a type of creativity which is the effort to keep something as it is (Sternberg & Ben-Zeev, 2001, pp.290-291). Replication is similar to imitation, the absolute opposite of producing something novel. It can thus be confusing if any productive effort is classified as a type of creativity. Creativity is usually thought to include the aspect of novelty (Mandler, 1995). In this sense, other types of creativity classified by Sternberg and Ben-Zeev do well deserve the label ‘creativity’, because they meet the novelty condition: For instance ‘redefinition’ which means looking at a field from a new point of view, ‘advance forward incrementation’ which is the attempt to move a field beyond a point where others are ready to go, and ‘redirection’ that is the attempt to move a field towards a new and different direction.

A whole history of the study of ‘creativity’ has already been recorded (Albert & Runco, 1999) including a research tradition focusing on personality traits related with creativity (Amabile, 1983a, 1983b; Barron, 1969; Eysenck, 1993; Feist, 1998; Gough, 1979; Helson, 1977; Kasof, 1995b; MacKinnon, 1962, 1965). These include traits like judgmental autonomy, self-confidence, risk-taking, non-conformity, independence, and a critical attitude towards norms. Autonomy is inextricably entwined with the intrinsic versus extrinsic motivation dichotomy in creative activities and individual differences in the response to constraints to creativity (Amabile, 1983a). Furthermore, the concept of lateral thinking, that is seeing things broadly and from various perspectives has also been suggested as an aspect of creativity (DeBono, 1970, 1992). What is clear from the above is that there is no such thing like a ‘creative personality trait’. To create something

requires a combination of many traits, including the discipline and perseverance to transform new ideas into a product.

There are different components of the creative process and it is often not made clear in the literature for which of these components the different personality traits have a supportive effect. The following example illustrates the problem: Research on shyness and self-esteem in children found that the shier and lower in self-esteem a child was, the lower its creativity (Kemple, David, & Wang, 1996). The term creativity was used as a multi-variate construct here. The specific switches in which the shyness actually interferes were not specified: The child may well have been creative but its shyness interfered with what follows the creative process, namely the process of obtaining innovative performance - including the child's faculty to present its products to the social environment and obtain social recognition for its novel objects. In a model, which contains the different components of creativity and makes the distinction between creativity and innovative performance, effects of shyness could better be located.

The different personality traits are best linked to models, of creativity as a process, so it can be identified which traits affect which components of the process. According to one of the first and still very useful process models, creativity comprises the phases of *preparation* when individuals direct their attention to a particular topic and gather information within themselves and their environment; followed by an *incubation* phase in which conscious work stops and attention is directed to other things, while unconsciously the creative process continues; then the *illumination*, the moment when new insight suddenly comes to mind; and finally the *verification* phase in which logical and rational thought comes in again to turn the new insight into something apparent to others (Wallas, 1926). Much later, it is suggested in the psychological literature that creativity can be 'best conceptualized as a syndrome involving a number of elements: (a) the processes underlying the individual's capacity to generate new ideas or understandings, (b) the characteristics of the individual facilitating process operation, (c) the characteristics of the individual facilitating the translation of these ideas into action, (d) The attributes of the situation conditioning the individual's willingness to engage in creative behavior, and (e) the attributes of the situation influencing evaluation of the individual's productive efforts' (Mumford & Gustafson, 1988, p.28). All of these elements of the process are crucial, but it seems that Wallas's as well as Mumford & Gustafson's model overstretch the reach of the term 'creativity'. For instance, the (e) element in the latter model is actually not about creativity, but about innovative performance. On the basis of what has been reviewed in this chapter until this point it seems that a model could

be helpful, which simply accounts for and distinguishes between the following processes: The seeking for novelties, followed by the creative process of finding a novelty and transforming it into a product, and finally innovative performance, which includes the social recognition for a novelty.

2.4 INTRODUCING THE *NOVELTY GENERATION MODEL (NGM)* ON NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE

A novelty-seeking individual may produce comparatively few novel products and/ or have a low innovative performance record. Where are the phases where these individuals become stuck in the process of generating a novelty? It may for instance be distractibility, unproductive hyperactivity or poor interpersonal relationships, or it may be the lack of persistence or that the work produced is beyond the standards set by the social environment. So it can be the case that other, less novelty-seeking individuals or less creative individuals with high achievement needs may reach higher innovative performance than the most creative heads. None of the existing models on creativity and innovation account for these links between novelty-seeking scores, creativity and innovative performance. This shows the need for an integrative biopsychosocial paradigm for the novelty generation process.

It can be argued that people with a temperament characterized by higher levels of novelty-seeking and lower scores in persistence are likely to have a lower overall novelty-productive record and also a lower innovative performance record. Before putting their ideas into practice they may already have become bored again with the ideas at hand and jump right into the following novel idea. An important question for future research in this area will be whether there are novelty-seeking scores, which are too high to be conducive to creative behavior and innovative performance. This seems to point to an N-shape relationship between novelty-seeking and the production of the novelties found. This would mean that extremely low and extremely high novelty-seekers might be less likely to produce findings, whereas the slightly above average novelty-seekers with the necessary persistence scales will be most likely to produce them and potentially also reach higher innovative performance. It can be hypothesized that whenever the novelty-seeking intensity exceeds a certain mark or is combined with low persistence, it hampers the carrying out of operational tasks linked to the production of a novel finding. The combination of moderately high novelty-seeking with efficient, organized and persevering behavior can be expected to be

the ideal combination for the production of novelty. Referring to the stimulus-variation seeking behavior discussed above we can also argue that less linear working styles are often encountered in the context of more creative work. More frequent switching to various stimuli while working towards the production of new findings may be a very adequate work style for highly novelty-seeking individuals.

A character trait that modulates novelty seeking is self-directedness, cooperativeness and self-transcendence. A high score on the subscale 'purposeful' versus 'aimless' has been argued to support the novelty-seeker in being creative (Cloninger, 2004, p.105). According to the Character Cube of the Center for Psychobiology of Personality, Washington University, an individual scoring highly on the character dimensions of Self-Directedness, Cooperativeness and Self-Transcendence is most likely to be creative (Cloninger, 2004, p.46). In contrast individuals who are for instance low on self-directedness and self-transcendence are very likely to display dependent, rather than creative behaviors. They can be argued to imitate rather than find something new. Those who in addition score low on cooperativeness are likely to experience downcast moods.

I would like to offer a new model, the Novelty Generation Model (NGM) (see Figure 2.1 below), in which creativity consists of two components: Novelty-Finding and Novelty-Production, preceded by Novelty-Seeking behavior as defined above, and followed by innovative performance, as defined in the following section (2.5). So, for one part we can speak of creativity when an individual is capable of finding novel problems and novel solutions. This is the process of *novelty-finding*. Here, cognitive processes such as mental imagery, concept formation, categorization, memory retrieval, analogical reasoning, problem-solving, attention, concentration, and reaching higher levels of self-aware consciousness (see section 2.2) play a key role. When a creative individual transforms novel findings into observable products we can talk of the process of *novelty-production*, the second component of creativity. The act of 'producing' the found novelty is the first step and necessary condition for a novelty to enter the innovation process later. Though, it is an option for every individual to stop after the novelty-seeking and novelty-finding process and to lock up all the sought for and found novelties in the brain.

Transforming one's findings into a product that is visible to others, requires specific motivations: In terms of motivation and achievement goal theory one may argue that novelty-producing behavior is related to *mastery goals* which reflect the desire to develop and gain competence for oneself personally, while seeking innovative performance mirrors *performance goals* which reflect the

desire to demonstrate competence also relative to others (Van Yperen, 2003). Mastery goals in the creativity context can be argued to involve also the need to understand one's own psyche and behavior in the creative process, the way the individual deals with his or her own limitations. In the tradition of the positive philosophers humility and acceptance of such limitations may be argued to be highly conducive to mastering the creative situation, in the same way as such a humble attitude is the best basis for reaching elevated levels of thought and well-being (Cloninger, 2004p. 107). One of the psychological characteristics considered to distinguish gifted individuals is a 'meta-cognitive awareness of one's own problem-solving strategies' (Winner, 1996) which is one part of the individuals understanding of the own psyche in mastering the creative process. Another one is being able to distinguish uplifting thoughts from self-defeating ones, and stick to the uplifting ones to get ahead in the creation process. These are ways towards high self-transcendence, for instance 'sensibility (self-forgetful common sense and fresh experience of sensory responsivity) versus repression (sensory numbing)' (Cloninger, 2004, p.214). All these aspects of the creative process belong to the realm of private achievement.

In contrast, the innovative performance component of the novelty generation process is about reaching performance goals which satisfy the achievement needs of an individual in a wider social context (McClelland, 1987). A term coined by Murray describes the core of this component: 'succorance' referring to the need for social attachment and approval by others (Murray, 1938). Transforming a finding into a product observable for others may even be a conscious decision, a felt obligation of giving something novel back to a society from which one has absorbed novelties in the first place. The latter motivation to 'produce' a found novelty is in fact also the decision not to only satisfy one's own novelty-seeking needs, but to satisfy also the novelty-seeking needs of others. Thus, at its core creativity contains a transition from mere novelty-finding to novelty-production which takes place as soon as an individual starts to articulate his or her novel insights with reference to the existing. Those two components of the creative process are researchable by means of different research traditions. Novelty-finding is more the domain of the cognitive and neuroscientists, while the novelty-producing component of creativity is also accessible to social psychologists, since the outputs of this latter component are visible to the social scientist.

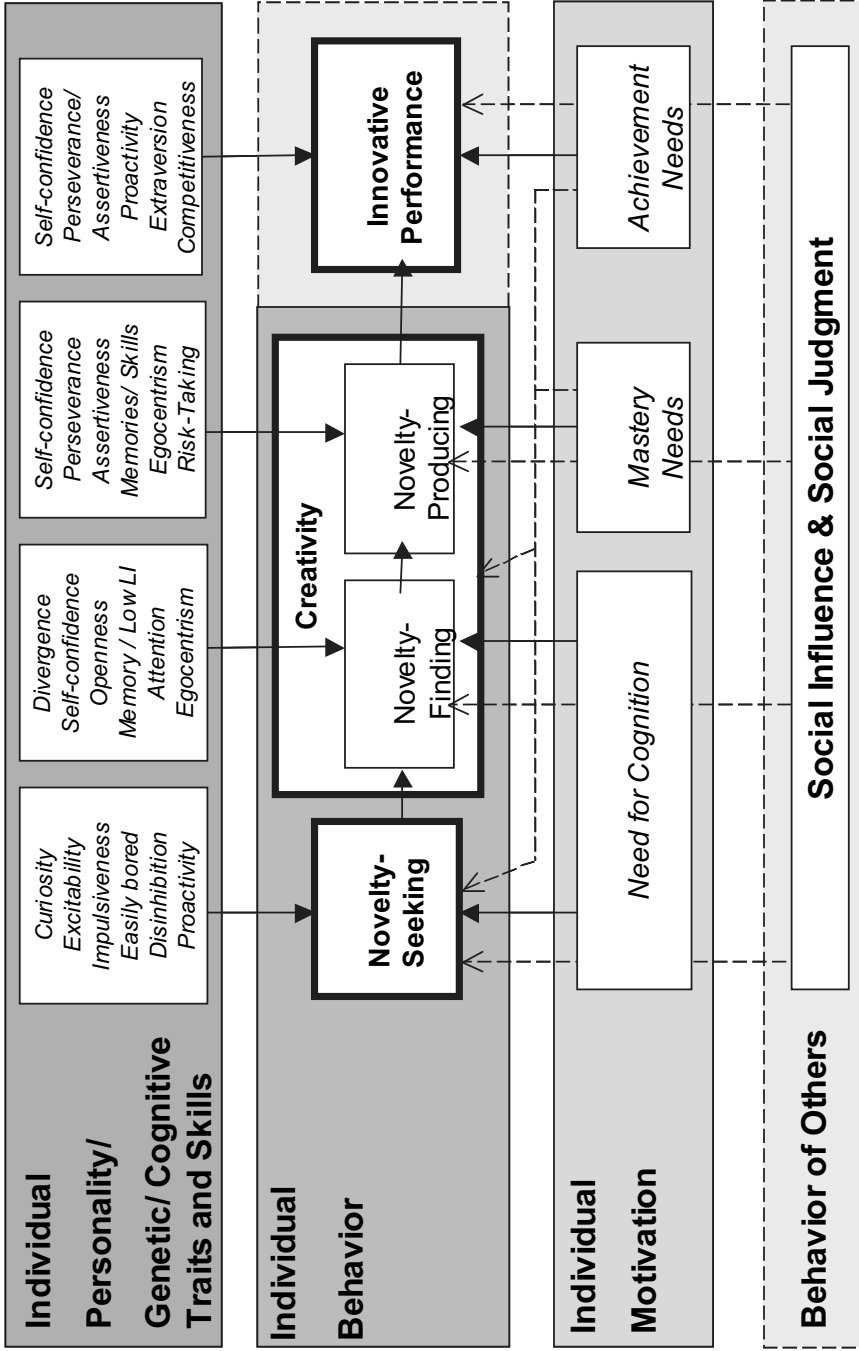
The final component in the process of generating a novelty - innovative performance - depends on the individual's interaction with the social environment in which the novelty is presented. Here, TCI Cooperativeness arguably assumes a

central role, just as *Extraversion* in the Five-Factor-Model and sociability help in presenting one's products to a social environment. These are important personality ingredients needed for reaching socially recognized innovative performance, while shyness and isolation are not. Most human beings to a certain degree have a need to affiliate, to gain esteem, achieve and be rewarded, which may also enable them to make a living. All this makes them seek social recognition for their work. Individuals with such achievement needs, who for whatever reasons decide to remain covert, for instance out of fear of social judgment, are at risk of experiencing states of dissatisfaction, or even of developing a dysfunction of some sort, be it economic or mental, as will be explained in the last section of this chapter. When the novelty-producer proceeds to this final stage, other personality traits become important, for instance the ability to interact with the environment to get his/her product socially judged and recognized as novel. History teaches that social recognition for a new idea is not necessarily received by the person, who had the new idea, but the person who is able to convince others about this idea. Here lies the difference between creativity and innovative performance.

How does the Novelty Generation Model (NGM) relate to the existing literature on creativity? This model responds to one of the latest contributions to the creativity literature where it is stated that 'biological reductionism cannot explain individual differences in the creative gifts shown by prodigies and savants (...). (...) dualistic science can explain many things, but not the creative scientist' (Cloninger, 2004, p.347). Where it has been argued that neither a biomedical approach, nor a psychosocial approach alone can be sufficient to explain human well-being and creativity, the NGM seeks to capture the neural, the cognitive as well as the social level of analysis as well as their interactions. Cloninger proposes a view in which creativity almost appears as a natural 'by-product' of the individual's striving for well-being or its maintenance on 'a realistic path to full mental health and happiness' (Cloninger, 2004, p.349). Here, creativity is understood as a spontaneous, non-causal process that emerges in the meta-cognitive and contemplative levels of self-aware consciousness. Cloninger sees human creativity as a search in three psychological dimensions: the search for information, the search to understand one's own psyche within the creative process without being judgmental, and thirdly the search for coherence of biological and social systems. It is the latter psychological dimension, which will be discussed in the next section on the social psychology of the novelty generation process.

The personality traits suggested by the literature so far feed into the different behavioral components illustrated in Figure 2.1. In contrast to the NGM, these personality traits have not been assigned a central role in the most widely accepted

Figure 2. 1: The Novelty Generation Model (NGM): A Biopsychosocial Approach



model: Theresa Amabile's componential model of creativity. The NGM model accounts for the whole novelty generation process whereas Amabile's valuable model focuses on creativity. What the NGM has in common with Amabile's model is the emphasis on the interplay between intrinsic and extrinsic motivation, which is key in Amabile's work (Amabile, 1983b). However, Amabile's componential model refers to 'domain and creativity-relevant skills' as input factors for the creative process and departs from a first component labeled 'Problem or task representation' followed by the cognitive components required to produce an appropriate response (Amabile, 1983a). In contrast, the above model places more emphasis on temperament and personality factors feeding into the novelty generation process, especially in the onset of the process (see the novelty-seeking component) which does not depart from a problem or task, but a novelty-seeking behavior which may be seeking out problems or tasks in the first place, supported by a respective temperament and a cognitive need fed by it. Secondly, another difference between the two models is the social judgment element finishing off the generation of a novelty in the NGM. Relating these different processes within one model is hoped to solve some of the theoretical and particularly definitional problems in the creativity and innovation literature. The cognitive characteristics and processes discussed in section 2.2 can be seen as feeding into the *novelty-finding* component of the NGM.

In integration of these processes in one and the same model, it also becomes possible in the NGM to elaborate on the motivational inputs to each of these processes by indicating the different needs motivating the individual and also in which constellations they may work intrinsic or extrinsic. In the *NGM* extrinsic motivators (indicated by dashed lines) operate for instance when individuals seek and/or find novelties with other motivations than satisfying their needs for cognition. This is for instance the case when achievement needs - which function as intrinsic motivators in achieving innovative performance - assume motivating roles in earlier stages of the model and operate as extrinsic motivators there. Individuals differ in dealing with extrinsic motivators and constraints on the one hand, or freedom from extrinsic restrictions on the other: some may need constraints and external pressure to produce, while for others freedom from such constraints will be more conducive to productive novelty-seeking. The factors determining the ratio of intrinsic versus extrinsic factors as motivators are presented here in the Novelty Generation Model. To explore the interactions between them in detail would be a rewarding activity in future creativity research.

The NGM also differs from other models of creativity such as those mentioned

earlier by Wallas (1926) and Mumford & Gustafson (1988) in that the NGM clearly treats creativity as a more reduced concept within a wider process of what is labeled “novelty generation” and makes the distinction between creativity and innovative performance that needs to be made to avoid conceptual confusion and methodological problems in research the novelty generation process.

To conclude this section, I derive the following definitions from the Novelty Generation Model (NGM). These definitions focus on the satisfaction of an array of needs and assume that creativity is part of the individual’s maintenance of a sense of well-being:

Novelty-Seeking is

dopamine-regulated, exploratory behavior supported by specific personality and by cognitive parameters and is intrinsically motivated by the need for cognition, and extrinsically motivated by mastery or achievement needs.

Creativity is

behavior supported by three processes that are fed by specific sets of personality and cognitive traits: firstly, the process of *novelty-finding* intrinsically motivated by the need for cognition and secondly, the process of *transforming the novel findings into a visible product*, which is intrinsically motivated by *mastery needs*, while both processes can also be motivated extrinsically by *achievement needs*; and thirdly, a non-causal process that emerges in the meta-cognitive and contemplative levels of self-aware consciousness.

The first two processes highlight the purposeful behaviors that are causal in nature. This part of the definition is adequate for research of cognitive-behavioral rewards (see also the empirical part of this book). However, in neuropsychological research on creativity one should also include the non-causal component indicated by the third process in the above definition .

2.5. UNDERSTANDING INNOVATIVE PERFORMANCE BY WAY OF SOCIAL PSYCHOLOGY AND SOCIAL COGNITION

No man is an island

John Donne

2.5.1 SOCIAL INFLUENCE AFFECTING THE NOVELTY GENERATION PROCESS

In this social psychological section, the phenomena of novelty-seeking and creative behavior as well as innovative performance are discussed in the light of the social radius of an individual. Who are the people in this social radius influencing the individual and who, in turn, are the people influenced by the individual? In the terminology introduced above social influence with respect to the innovation component of the NGM means that: someone succeeds in providing novel stimuli to another by his/her products. A whole psychological research agenda on innovation can be derived from this premise. Surprisingly, research on innovation in social psychology is restricted to behavioral group processes of being innovative understood as ‘doing something differently’, rather than on the individual (within a particular reference group) who may perceive something as a novel stimulus and therefore intrinsically decide to give it the label ‘innovative’. Most neglected is the extrinsic motivation pathway leading to an individual’s decision to label something ‘innovative’- that is not because the individual really experiences something as a novel stimulus as such, but because it may for instance be socially desirable to say that something is innovative within a particular environment.

Definitions of innovation across the innovation literature including economics, organization & management research, sociology and psychology do not take this crucial aspect into account, especially all those definitions starting out like ‘an innovation is something new which is for instance commercialized/ brought into used, or socially recognized in any other way...’ (see chapter one). In innovation research it is a rather naïve approach to build on the assumption that something ‘new’ is labeled an ‘innovation’. A more appropriate basis will be definitions stating that ‘something’ is judged to be new and labeled an innovation. Whether this judgment is intrinsically motivated by a perceived novel stimulus or extrinsically motivated by social objectives is another question. In the existing social psychological literature on innovation such definitional

problems are not even touched upon. The term ‘innovation’ has mostly been used in the social influence research on minorities (Moscovici, 1985; Moscovici & Doise, 1994), where innovation is argued to arise from minorities rather than majorities. In research on social influence processes and innovation (Martin & Hewstone, 2003), the term innovation has been defined in its core as a kind of *non-conformity*. Whether this non-conformity includes the new relative to a particular environment remains undefined. Here innovation is considered as behavior, which is different but not necessarily novel.

Also, to date neither the difference between the novelty-seeking process, creativity and the innovation process nor the relationships between them have been paid attention to by social psychologists. A social psychological perspective, though, can help to assess the influence the social environment has on the novelty-seeking and creative behavior of the individual. An important aspect is for instance that novelty-seekers may have an above-average need to contrast themselves away from their environment. Here it is also relevant to investigate how the identity of individuals and the status they have in the eyes of others interacts and influences novelty-seeking as well as creative behavior and finally also the innovative performance, which the novelty-seeker may achieve. It is this last component, the process leading to innovative performance, which falls fully into a social psychological perspective since it is the process of social judgment and recognition of the novel product. Social comparison and social judgment theory may serve to understand better the innovation process, and the more surprising it is that this theoretical body has not yet entered the innovation and creativity literature.

First of all: How can social influence modify novelty-seeking, novelty-finding and novelty-production? Human beings are likely to respond in one way or the other to evaluative situations from the social environment. A first answer comes from developmental psychologists: ‘parents with higher educational and occupational status may provide both genetic and environmental contributions to their child’s intellectual ability and also may encourage exploratory, socially stimulating behaviors’ (Raine et al., 2002). This relates to another answer, namely the exposure to creative role-models which creative individuals may have experienced in their development (Simonton, 1975, 1984). One can argue that novelty-seekers can only satisfy their novelty-seeking needs with stimuli, which their social environment has hitherto not produced for them, that is, stimuli which are in fact new to them. For instance, when scientists experience novelty-finding, the satisfaction of their novelty-seeking needs can only take place if their findings are different from what others in their reference pool have found. In other words,

their social environment influences their novelty-finding experience. In terms of social learning theory ‘innovators (...) draw upon the contributions of others and build from their experiences something new’, a process labeled as ‘creative modeling’ at the basis of an innovation (Bandura, 1977, p.48).

Furthermore, the degree of richness in cognitive stimuli offered by an environment is another social factor influencing the novelty-seeking needs of individuals. The richer the cognitive stimuli in the environment, the more novelty-seeking the individual is likely to become (Fernandez-Teruel, Escorihuela, Casetellano, Gonzalez, & Tobena, 1997). However, according to social comparison theory, the mere presence of others, especially higher status individuals, may cause stress to an individual who has to perform productive novelty-seeking in front of these others, which for instance is the case in musical improvisation or ad-hoc performances. We may derive from these theories that hierarchical social environments cause stress in the individual and are therefore not conducive for the individual in satisfying his or her novelty-seeking needs. The ideas laid out by the Yerkes-Dodson Law on arousal levels confirm this in the context of non-habitual tasks. The Yerkes-Dodson Law states a relationship between arousal and performance in the form of an inverted-U function (Yerkes & Dodson, 1908). High arousal, which is typically accompanied by strong emotions, prepares the body for “fight or flight” actions and is said to facilitate the performance of tasks, which are highly practiced, routine or physically strenuous and more instinctive. The law further states that the optimal level of arousal decreases as task difficulty increases, such as in novel or intellectually challenging tasks. So, high arousal may be argued to interfere with novelty-finding, and less with the production phase which potentially follows it. In the threshold from novelty-seeking to novelty-finding the fear of making mistakes as well as decrease in status, and loss of social recognition may interfere, though this is always dependent on personality differences. Thus, the presence of other people may interfere with creative behavior.

Responses to the external environment have been found to differ between shy individuals and less shy individuals (Cheek & Stahl, 1986). Individuals high in *self-monitoring* are very concerned about how other people judge them. Such individuals are more susceptible to extrinsic motivation patterns. They may be argued to have a hard time accomplishing a genuinely novel production, because they are more concerned with the judgment processes than is conducive to following intrinsic motivations. Attention has been dichotomised into self-focus and environmental focus (Duval & Wicklund, 1972). It can be assumed that more status-conscious and externally driven individuals are more self-monitoring and

therefore find it harder to focus on their task. If individuals are busy wondering what others will think about them, they are objectively self-aware and in the moments in which they forget about themselves, the environment and not their own person is the focus of attention (Susan T. Fiske & Taylor, 1984, p. 200). Neither environmental focus nor exaggerated self-focus, but task-focus is argued to be the key (Amabile, 1996).

Social influence on the novelty-seeking and novelty-finding process often works via being or aspiring to become a member of a particular social group, achieving its social recognition by conforming or by contrasting oneself away from a particular group. Belonging to a group creates a social identity and makes the members self-categorize on that particular aspect of their behavior (Turner, 1987). This might even be stronger, if the members have a high status with respect to producing novel objects. For instance, being born into a social group, to work or simply live in it, be it a country, a race, or a family with a high status concerning novelty-seeking, influences its members' motivational states with respect to novelty-seeking. The need for prestige, esteem or acceptance by others in this group is then a strong motivator for behavior (Ross, Bierbrauer, & Hoffman, 1976). However, also the opposite may be the case, as the pressure to fulfill the role of the novelty-seeker may create aversive motivational states. So being affiliated to a social group with a high status with respect to novelty-seeking will also contribute to the affiliates' positive self-esteem. In the novelty-seeking professions individuals are expected to perform novelty-seeking behaviors and achieve a particular degree of innovative performance.

2.5.2 UNDERLYING INNOVATIVE PERFORMANCE: SOCIAL COMPARISON, CONTRAST AND SOCIAL JUDGMENT PROCESSES

Social judgment processes are key in all novelty-seeking professions. A urinal came to be a famous artwork and Duchamp who presented this toilet to the world reached the highest innovative performance with it. In this section I will use insights on social judgment processes to explain how this can happen. What is innovative performance? What is innovation? The term 'innovative behavior' often used in the innovation management literature does not really make sense. After all, an individual cannot 'behave innovatively': individuals can only display novelty-seeking and creative behavior and only judgment by others can label the results from this behavior as 'innovative'. There is, however, particular behavior that can help the individual to reach innovative performance:

the willingness to expose the products of novelty-seeking and novelty-finding processes to the social judgment of others. It is also the ability to persuade and elicit social recognition for the novel quality of these products within a defined context of comparison. This means implicitly or explicitly making reference to the products of others by contrasting the own work away from it. 'Performance' is linked with achievement goals, which includes judgments about an individual and his/her products by others. The unwillingness, inability or fear of novelty-seekers to expose themselves to social judgment in a particular environment of social comparison separates their creativity from innovative performance. Also, the term *innovative performance* implies having an effect on others. A novelty that never reaches others is not recognized as an innovation. Society may or may not miss out on something, but neither the novelty-seeker nor the society will ever know.

It is this set of processes falling under the heading of innovation which have until now been classified in the creativity literature as 'the social side of creativity'. As Simonton writes, 'a successful "social psychology of creativity" demands that the creative individual be placed within a network of interpersonal relationships' (Simonton, 1984, p.1273). 'Creativity is located in neither the creator nor the creative product, but rather in the interaction between the creator and the field's gatekeepers who selectively retain or reject original products' (Kasof, 1995a, p.366). This has also been referred to as a 'systemic view' on creativity assessment (Csikszentmihaly, 1996, 1999). Csikszentmihaly distinguishes between the domain or the body of knowledge about a particular subject area from the field, that is the context within which this body of knowledge is handled which may include also the judges. Judges have been found to maintain some basic categories or prototypes with respect to creative individuals and products (Runco & Bahleda, 1986).

In the approach to Novelty Generation Model introduced in this chapter, social judgment processes most strongly influence the last component: innovative performance. Social judgment processes strongly rely on status, identity and self-categorization mechanisms of all the actors involved in the process of novelty generation. Within the social judgment process, the status of the individual judges interacts with the status of the judged and equally the judges' identity feeds into the *identity of the judged*. The norms and values underlying the social comparison and judgment processes are transformed across time in the aggregated continuing dialogue between all the judges and the judged in a particular field. The standards and criteria handled by professional judges with respect to the products they judge on the novelty aspect can easily translate into the novelty-

seeking behavior of individual producers within the environment for which the judges are responsible. Recognition of social dominance in the perception of higher hierarchical power makes individuals with lesser hierarchical power monitor others in socially dominant positions. Whereas those in a position of higher power have the possibility to control their own outcomes (and thus do not need to attend to others), others in a position of lower power have been shown to be best able to protect their own interests by carefully monitoring those in a position of higher power (S.T. Fiske, 1993). Those bringing about the social judgment in a society are usually the ones with the higher power. The novelty-producing actors subject to their judgments may be influenced in their processes by monitoring the standards of those in power. Only very rarely new norms and standards translate from an individual producer to the judges. These are the moments when a field as a whole is most likely to be advanced (Kuhn, 1962).

Social comparison processes (Festinger, 1954) play a central role in the innovation process: such processes could apply to an organization, a team within an organization, a more informal group of producers, like schools or movements in art, groups of males or groups of females, or a 'longitudinal group' of individual producers who for instance share as a common feature that they are all winners of a particular award. Comparison effects concerning the contents of what someone produces may then either state a contrast with everything else known by the judges or assimilation may be visible with respect to the known categories (Mussweiler, 2003). Contrast effects are mechanisms, which refer to the novelty-seekers themselves as well as those who make the judgments about the novelties, who may decide to contrast the product they judge away from previous productions. If a product does not make any reference to previous products accepted in a particular comparison environment, the social comparison is more difficult. Social recognition of a contrast effect may be argued to only lead to the evaluation of a target as innovative, when the contrast satisfies the novelty condition. One may also contrast oneself away from others by doing something in an old and traditional way in some settings. The recognition of an assimilation effect may lead to an evaluation as non-innovative or even imitative.

From the perspective of the producer, seeking novelties and creating something novel is striving for contrast rather than assimilation. Novelty-seekers seek the new and the different. Apart from the factual contrasts and assimilative elements of for instance an object they present as novel, factors like category membership may influence whether a target is indeed assimilated towards or contrasted away from a certain standard by the judges (Brewer & Weber, 1994). Groups of individuals are the basis for stereotypes to develop which may affect the novelty

generation process: Belonging to a social group which is stereotyped with respect to novelty-seeking and creativity may mediate the identity of the group members and their motivation to seek novelties but also the social judgment process of innovation (more on this aspect in chapter four) and decisions of others about whether to support a novelty-seeker or not. The latter aspects of social influence and social judgment (social support and stereotypes) will be discussed in more detail in the following chapters (3 & 4) of the theoretical part.

The process of comparative evaluation takes place in three stages, one of which is the selection of a standard, the next stage is the actual comparison and the third stage is the evaluation (Mussweiler, 2003, p.474). Especially the second stage, the actual comparison and the psychological processes, which operate in this particular stage have received the least research attention till now. In terms of the NGM, the question is whether a social judge really experiences a novel stimulus in the product he or she is presented with, and/or whether he or she only experiences it as socially desirable to publicly acknowledge novelty in the product.

It is a long-established idea in the psychological literature that the judgment of knowledgeable others such as experts, peers or supervisors are key in assessing the value of an individual's potentially novel contribution (Getzels & Csikszentmihaly, 1975; MacKinnon, 1962). However, the aspect of intrinsic versus extrinsic motivations of the social judges has been neglected in this context. Key questions in any social judgment situation are: who are the judges and what are the criteria and the motivations underlying the social judgment? The judges in this social comparison process may be decision-makers in potential organizational affiliations for the individual novelty-seeker, such as publishers who choose which author to publish or not, the critics in the media, expert juries in award and grant procedures, the sponsors of such procedures, colleagues and competitors, and finally the market as an aggregate of the consumers or experts, that is, professional gatekeepers generally acknowledged for their expertise in the industry. Judges relate their stored knowledge regarding the target to the judgmental task at hand (Trope & Liberman, 1996). Expert cues are key in the persuasion process (Petty & Cacioppo, 1986). Experts provide signals, which provide some sort of a guarantee for the quality of what someone presents as potentially novel. The higher the status of judges, the more they will be able to influence the innovative performance of those they judge. Standards, criteria and arguments involved in a social judgment process throughout the social judgment literature are said to rest on three main factors. First, the recognition of intrinsic qualities of the target, second, the judges own prior knowledge and

third, the preferences and the influence from the judgment of others close by, or influence from the wider social environment. These factors account for the fact that judgments about creativity have been found to be highly subjective (Katz & Giacomelli, 1982). Even if the novelty aspect in a product is non-existent, it is possible that a favorable social judgment covers up the lack of novelty and nevertheless generates innovative performance for the individual producer.

Various conditions can be distinguished in which different compositions of juries contribute to the social judgment process. In some sectors, expert judges are quite important as intermediaries between producers and consumers in the value creation process for new products, whereas in other industries or sectors they are not. Given the comparatively high importance of such judgment processes in the novelty-seeking professions such as science and art, the argument that highly creative individuals are particularly aware of social comparison and evaluation processes is not surprising: 'Creative individuals are very much concerned about their personal adequacy, and one of their strongest motivations is to prove themselves' (Barron, 1969). But so are social judges in the novelty-seeking professions: Their own adequacy issues and their need to prove their influence may interfere with their judgment (for instance in journal refereeing processes in science when judges are criticized or not referred to at all in the product they are asked to judge). So, an individual's innovative performance also reflects this individual's ability to cooperate with the social judges (see NGM) and secure their support in the competition for social support, a construct discussed in the following chapter. On the basis of the NGM and social comparison and judgment theory *innovation or innovative performance* can be defined as follows:

Innovation is

the outcome of an interaction between individual and social factors including on the one hand an individual's behavior fed by specific personality traits and achievement needs and on the other hand the either intrinsically or extrinsically motivated social judgment behavior of others who publicly acknowledge aspects of novelty in the product(s) presented by this individual within a defined range of comparison, either because they do experience novel stimuli in this product and/or because they experience it as socially desirable to pass such a novelty judgment.

This definition will be used as a basis for the following chapters as well as the empirical study presented later in this book. What is implied by this definition is

also that not only the novelty-seeking scores of the individual producers, but also those of their social judges are essential in the process of establishing innovative performance. Social judges with a highly novelty-seeking temperament will be less easily stimulated, since their novelty-seeking temperament may have helped them towards a far wider range of stimuli with which to compare the presented one than less novelty-seeking judges; also, it may be hypothesized that in highly novelty-seeking judges the judgment is more likely to be intrinsically motivated by whether they experience novel stimuli or not, rather than by extrinsically motivated social desirability considerations.

2.6 PSYCHODYNAMIC ASPECTS OF THE NOVELTY GENERATION PROCESS: ABOUT NEEDS, FEARS, MOTIVATION AND SELF-REALIZATION

Curiosity, like all other desires, produces
pain as well as pleasure.

Samuel Johnson
(*The Rambler*, no. 161, 1 October, 1751)

2.6.1 THE SATISFACTION OF THE NEED FOR COGNITION BY NOVELTY-SEEKING BEHAVIOR

In this section I would like to treat in some more detail the motivational part of the *Novelty Generation Model (NGM)*. Motivational processes have taken their firm place in the study of creativity (Collins, 1999). Next to motivational aspects a psychodynamic perspective also emphasizes unconscious processes such as dreaming, which may differ between more or less novelty-seeking individuals. For instance, a comparison of the dreams of creative professionals including scientists, sculptors, composers and writers with the dreams of accountants and police officers showed that the dreams of the creative professionals were far more distorted, implausible and farther from reality than those of the control group (Domino, 1982). The satisfaction of the need for novelty (Houston & Mednick, 1963; Mednick, 1962) and cognition in general (Cacioppo et al., 1996) brings pleasure to the human organism and increases its well-being. Surprisingly, the pleasure construct is neglected in research on creativity and innovation. Suffering has a longer tradition, for instance in the psychoanalytic tradition of assigning creativity a place in the process of *sublimation*, the channelling of the suffering from unsatisfied needs into artistic production.

If individuals seek and find novelty they satisfy their *cognitive needs*, including the desire to know, understand, solve mysteries and be curious (Maslow, 1970). The humanistic tradition of psychology emphasized mental health, self-actualization (Maslow, 1968) and creative processes (Barron, 1963). Rogers argued that the reduction of defensive behaviors should be the best way of leading human beings towards the satisfaction of their needs, where self-reliance and freedom from external control are the key ingredients of creativity (Rogers, 1954). He contended that individuals are likely to realize their full potential if they experience a supportive environment free from evaluation.

2.6.2 THE SATISFACTION OF ACHIEVEMENT NEEDS IN THE INNOVATION PROCESS

The needs for self-realization and self-actualization explored in the psychodynamic perspective can be related to the more widely used term ‘need for achievement’ (see for instance McClelland, 1987). Self-realization is a term coined during the 1940s most clearly by the German psychiatrist Karen Horney (Horney, 1950). She deviated from the orthodox Freudian psychoanalysis by drawing attention to environmental and cultural factors more than to biological ones. Her ideas on self-realization have influenced Maslow, who later published widely about self-actualization and saw mental dysfunction partly as a result of frustrated self-actualizing needs. Horney labeled such needs *ambitious drives* and the *search for glory*. Horney uses the concept of *inner tension*, which the individual may experience since one’s potentials are not externalized and invisible to the external world. This tension, if not resolved, may lead to various kinds of disturbances affecting the individual’s well-being. The higher the perceived discrepancy between one’s own current state of self-realization and the perceived unrealized potential, the higher the feeling of dissatisfaction experienced by the individual, and the higher the drive to further self-realization. Highly novelty-seeking individuals can be expected not only to seek novelties outside themselves, but also to re-invent themselves in their striving for self-actualization. Most likely the personality and identity of extreme novelty-seekers is perceived as less stable by their environment than that of less novelty-seeking individuals.

Frustration of the self-realization needs may lead to perception of failure, depression or panic or even to futile day-dreaming (Horney, 1950, p. 31). The feeling of frustrated needs of self-realization may be necessary to help an individual gather the energies for the next leap in his or her development. Phases of neurosis and depression have often been said to be followed by the most

creative periods in human life. So, creativity also depends on the right mix and timing of phases in which external and/or internal pressure, directed action and productivity versus slack is allowed for by the environment. The question is, whether a particular individual has the autonomy and willpower to determine the timing of these productive versus slack phases for him or herself, or whether the environment has to determine that. Individuals have to gain the trust of their environment into their self-propelledness as a precondition for being granted the space for acting autonomously. The key challenge is to identify adequate types of support for different personality types at different cycle times between day-dreaming and directed action.

2.6.3 THE PSYCHODYNAMIC INTERACTIONS BETWEEN INNOVATIVE PERFORMANCE, CREATIVITY AND NOVELTY-SEEKING

Being compared and evaluated by others as is the case in the attribution of innovative performance can impede creativity (Koestler, 1964; Rogers, 1954). Linking this section to the previous on social judgment processes, individuals may experience, firstly, *social judgment* fears and, secondly, *self-judgment* fears, which may threaten their *identity*. Fears of not being good enough in the eyes of others or the fear of rejection are related with *avoidance motives* (McClelland, 1987, p. 393). An avoidance approach or ‘prevention focus’ has in turn been shown to lead to less creative behavior (Seibt & Förster, 2004). Avoidance motives include fears of being expelled from or marginalized in an institutional setting, fired, not promoted, fears of having a low status and the fear of simply not being loved. Fear of social judgment may not only keep individuals from deviating from the mainstream, but also from presenting their novelties to a wider public. Here also *self-judgment* processes come into play: these are mechanisms related to individual pride, to not wanting to be a loser and avoiding situations in which there is risk to fail. This may lead to the decision of not exposing oneself to the social judgment process, which is essential to achieve innovative performance.

Some responses to the blockage or frustration of cognitive needs are: to do nothing and give up any efforts; to repress one’s needs, that is to forget about them, to just distract oneself; or to satisfy ones’ curiosity indirectly by seeking the support of others in this (Mikulincer, 1997, p.1230). An example of such support seeking is living through the eyes of others, well known from the second-hand novelty-seeking of stereotypical wives and mothers who in some cultures may find themselves too constrained to get out of their domestic environment and satisfy their novelty-seeking needs by themselves and first-hand. For individuals

scoring high in the TCI novelty-seeking dimension as well as TCI harm-avoidance and self-directedness, conflicts between pride and externally induced feelings of inferiority are pre-programmed. In another interaction pattern, extrinsic motivations to strive for socially recognized innovative performance may overpower intrinsic needs for novelty-seeking. This may lead to dysfunctions in genuine novelty-seeking and finding. In other cases individuals divert their cognitive needs. Depending again on temperament and character, some may divert the surplus energies, for instance into aggressiveness, either towards the outside world, or towards themselves. The health and clinical neuropsychological aspects of such mechanisms will be elaborated in the following section.

2.7 THE INDIVIDUAL'S HEALTH IN THE PROCESS OF NOVELTY GENERATION: CLINICAL NEUROPSYCHOLOGY

Cocaine brings about an exhilaration and lasting euphoria....an increase in self-control and...more vitality and capacity for work....In other words, you are simply normal.

Freud, 1885

2.7.1 BEYOND OPTIMAL DEGREES OF NOVELTY-SEEKING

Specific health problems may affect the novelty generation process. High novelty seeking has been associated with bulimia, early-onset alcoholism and polysubstance abuse in a wide array of studies (Cloninger et al., 1994; Howard, Kivlahan, & et.al., 1997). Also there is long tradition of research on creativity and mental health (Schubert & Biondi, 1977) with respect to artists and scientists (Post, 1994; Roe, 1953). Individuals in the novelty-seeking professions have a higher predisposition for substance-related disorders, for mood disorders, especially the bipolar type such as manic-depressive disorder, and for psychological dysfunctions related to basic need satisfaction such as sexual and eating disorders, also involving compulsive-obsessive behaviors .

Novelty-seeking-related deviations which are perceived as dysfunctions by average standards, may, by the standards of the highly novelty-seeking human being be considered to support functions in the creative act. Interestingly, all

these disorders share the involvement of the brain structure *nucleus accumbens* (section 2.2.). The majority of the disorders discussed influence how individuals deal with the experience of pleasure and of deprivation. Occupational or organizational psychology outlets have paid little attention to the relation between novelty-seeking behavior and these disorders.

2.7.2 NOVELTY-SEEKING AND DOPAMINE-RELATED DISORDERS: ABOUT LACK AND EXCESS OF DOPAMINE IN DRUG ABUSE AND ALCOHOLISM

Substance abuse is frequent in the novelty-seeking professions, such as high caffeine intake, heavy nicotine smoking, use of opiates or cocaine and excessive use of aspirin to counter the heavy migraines artists often suffer from (Hughes, 1999). Those are dopamine-related disorders and dopamine is the neurotransmitter discussed above as regulating novelty-seeking behavior.

Novelty-seeking may function in the same way as a drug in that it brings pleasure via similar dopamine routes. High levels of cognitive novelty-seeking may combine with the development of a tolerance level, may reduce tension, raise spirits, and may produce the withdrawal patterns of depression, fatigue and irritability. The reward center in the brain of human beings who suffer from the reward deficiency syndrome is not activated to the same degree by normal daily life events as in human beings with a normally working pleasure center (Blum, Braverman, Holder et al., 2000). Involved here, apart from dopamine are also *anandamides*, neurotransmitters which generate the feeling of bliss (Volkow & Fowler, 2000). People with a dysfunction in their biological reward center are likely to need above average doses of external stimulation, be it through novelties or other drugs, to experience a stimulation of their reward centers with the same intensity as people equipped with more sensitive reward centers. This may express itself in the form of an addictive personality. Any extreme dedication to particular stimulants can be defined as a kind of addiction.

Individuals with genotypes were significantly less likely to be addicted to smoking (see section 2.2). Individuals whose genotype does not include the dopamine transporter gene SLC6A3-9 especially in combination with the DRD2-A2 genotypes genes have been found to have high levels of novelty-seeking and find it far more difficult to stop smoking than low level novelty-seekers who have this dopamine transporter gene in their genotype (Hamer et al., 1999; Lerman et al., 1999). On this basis the authors hypothesize that individuals carrying the SLC6A3-9 polymorphism have an altered transmission of dopamine which leads

to a reduction of their need for novelty and reward by external stimuli such as cigarettes. Likewise, it was found that men with higher novelty-seeking scores in the TPQ were associated with higher likelihood to drop out and also drop out earlier from alcoholism treatment than men with lower novelty-seeking scales (Kravitz et al., 1999). There were also results suggesting a correlation between childhood novelty-seeking temperament and alcoholism in later life (Cloninger, Sigvardsson, & Bohman, 1988). Furthermore, an association between the DRD4 exon III seven-repeat allele with high Novelty seeking and increased risk of opiate dependence has been found (Kotler, Cohen, & et.al., 1997).

These drug-seeking behaviors may modify a novelty-seeking temperament. Technologies extend human physiological capacities - and biotechnology includes drugs, that improve human performance. Individuals with low dopamine levels seek out stimulants, such as nicotine, cocaine and amphetamine to increase their concentration level. Drugs may alter human performance and it is known that use of stimulants as nicotin, cocaine and amphetamine influences concentration. It may be related to the social environment's expectations and is probably related to temperament as well (Cloninger, 1986; Liebowitz 1988). As argued in an earlier section, excessive dopamine levels related to intense novelty-seeking scores may impede concentration and therefore novelty-finding and production. This problem is for instance experienced by children and adults suffering from ADHD (Attention Deficit and Hyperactivity Disorder). Unfortunately there is a lack of studies on the relationship between ADHD and for instance artistic or scientific creativity. Excessive dopamine activity impedes concentration, also by increased motor activity. One may speculate that addictions to *depressants* of the central nervous system such as alcohol and opioids, are more likely to occur in extremely highly novelty-seeking individuals. It was found that higher novelty-seeking (or low constraint) and harm avoidance (or low vigor) were associated with several substance (ab)use (Ball et al., 1999).

The Zuckerman sensation seeking scale has been associated with cigarette smoking (Zuckerman, 1994). Dependence on sedating effects could also relate to the lower latent inhibition (LI) scores of highly creative behavior (Carson et al., 2003). Individuals with low LI scores are continuously exposed to more stimuli than those individuals with higher LI scores. If these findings are related to highly novelty-seeking personality and genetic make-up this high exposure to stimuli may provoke highly novelty-seeking individuals to feel the need to anesthetize themselves regularly. Reduced LI (latent inhibition) has also been associated with predisposition to actual acute-phase schizophrenia (Lubow & Gewirtz, 1995) and psychosis in general (see for instance Lubow, Ingberg-Sachs,

Zalstein-Orda, & Gewirtz, 1992). These conditions are linked to excess dopamine in the brain. Psychosis may come with delusions of grandeur, something not alien to famous individuals in art history.

The measurement of individuals' reactivity to dopaminergic drugs as related to personality traits (Netter & Rammsayer, 1991) is one way of experimentally exploring the link between novelty-seeking and dopamine. One may even speculate that only the temperamentally low novelty-seekers would take drugs to compensate for their lack, in other words would try to fulfill the requirements of their environments expecting high novelty-seeking behavior. The drug abuse literature has studied high novelty-seekers rather than low novelty-seekers. That individuals under pressure to produce novelty (in cases where expectations overstretch their natural novelty-seeking temperament) might try to compensate by dopaminergic drugs, while those whose novelty-seeking needs are higher than their environment allows them to satisfy might opt for alcohol or other depressants of the nervous system.

2.7.3 NOVELTY-SEEKERS AND MOOD DISORDERS- WHEN THE SEROTONIN PATHWAY CROSSES THE DOPAMINE PATHWAY

The relationship between low serotonin levels and high dopaminergic activity is highly under-researched, especially in the context of creativity, though models of creativity and mental illness do indicate a relationship (see for instance psychosis in Eysenck, 1995). It is known that low serotonin, which is related to depression, benefits from increased dopaminergic activity. So, the group of mood-related disorders and the above disorders are related to some degree. For instance ADHD comes with mood swings. The Minnesota Multiphasic Personality Inventory (MMPI), the most widely used inventory for clinicians to assess an individual's personality and psychological functioning, labels the items relevant to novelty-seeking creatives 'Hypomania' (Ma) including self-statements related to emotional excitement, hyperactivity, and flight of ideas such as "At times I fell very 'high' or 'low' for no apparent reason" (Nichols, 2001). Mood disorders have been linked to creativity, for instance manic-depressive illness with artistic temperament (Jamison, 1989, 1993, 1995; Ludwig, 1995). Related to such mood disorders also insomnia is often mentioned in this context. A link has been established between depression and the personality-dimension 'Openness to Experience' where the two sub-dimensions 'Openness to Actions' and 'Openness to Fantasy' have been distinguished (Carrillo, Rojo, Sanchez-Bernados, & Avia, 2001). Openness to Fantasy is clearly a personality trait

related to creativity and novelty-seeking.

In less severe form, positive and negative moods have been argued to have different degrees of conduciveness to the different stages of idea production (Kaufmann & Vosburg, 2002), which also support the arguments of the bipolar disorder approach to creativity. Among artists there are famous examples of novelty-seekers struggling with mood disorders: writers like Ernest Hemingway, Virginia Woolf and Sylvia Plath suffered from heavy depressions. Research in the area of psychosomatic medicine and psychiatry has investigated characteristics of poetic work produced under severe depression or before suicide (Stirman & Pennebaker, 2001). Composers like Robert Schumann who in a mildly manic year produced disproportionately much of his work while almost nothing during another severely depressed one, or Händel who is said to have composed the Messiah in a one-month manic episode. The psychopathology of famous painters has been researched as reflected in their paintings, for instance those of Van Gogh (Fairbairn, 1966). Another aspect of a novelty-seeking lifestyle may be that change is very frequent and frustrations of not achieving something according to the constancy and building up of relationships and careers, socially recognized achievement may lead to depression.

2.7.4 COMPULSIVE-OBSESSIVE DISORDERS AND PERSONALITY DISORDERS LINKED WITH CREATIVE PERSONALITIES

Compulsive behaviors sometimes relate to the satisfaction of some basic needs such as eating. Eating disorders are associated to novelty-seeking, for instance bulimia (Cloninger, 2004). Art history provides its own examples of creatives with eating disorders: often cited, the poet Lord Byron is famed to have had ‘a horror of fat’. He regularly abstained from eating due to his firm belief that he would lose his creativity if he ate normally (Brumberg, 1988). This reminds of the argument offered above that inducing deprivation conditions supports creative impulses. Equally well-known are the eating manners of Raymond Roussel, the dada-writer who had breakfast, lunch and dinner all together at dinner time, and recommended this as a crucial feature of his creative life. Eating disorders associated with high novelty-seeking also link back to environmental influences such as hostile childhood environments as explained in section 2.2.

Apart from the above disorders, there are also several personality disorders, which may be relevant in the novelty-seeking professions. Evidence has been found that high sensation seekers who continuously have to satisfy their above

average need for arousal and excitement have a higher likelihood of being diagnosed of *antisocial personality disorder* marked by gross violations of other people's needs. The main explanation is that normal emotional situations and culturally acknowledged moral issues cause only too low arousal in them as a result of which they remain unaffected (Comer, 2002). Furthermore, personality disorders of the odd, eccentric type, which are marked by the individuals' strange ideas are also likely to contribute to outputs, which are likely to be judged as novel by society. This argument is supported by findings that the TCI dimension of novelty-seeking was negatively correlated with the NEO-PI-R personality dimensions of agreeableness, conscientiousness, socialization (Ball et al., 1999). Some of the above-mentioned aspects of personality disorders are also related to Autism and the Aspergers Syndrome. Both disorders have been brought into context with artistic and scientific creativity (Fitzgerald, 2004).

Concluding this section on the health of the novelty-seeker it can be said that issues of creativity clearly figure in the individual's striving to maintain a subjectively perceived state of well-being. Here creativity may occur as a natural by-product of this striving towards well-being (Cloninger, 2004), but it may also be understood as a means to achieve and maintain it: It may be argued that the individual's process of understanding him or herself in the creative act, reaching higher states of self-conscious awareness and contemplative thoughts are a very useful way to improve the individual's understanding of his/her own psyche and to bring about a particular kind of order and coherence into the lives of artists, scientists and other creatives, which in turn increases their overall well-being.

2.8 CONCLUSIONS ON THE RELATIONSHIPS BETWEEN NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE IN THE PROCESS OF NOVELTY GENERATION

The principle research traditions in psychology offer various highly relevant concepts and theories to come to a better understanding of novelty-seeking behavior and innovative performance. Novelty-seeking, the concept developed in the psycho-physiological and personality research, seems to be the most essential basis of innovative performance. In the approach offered in this book, 'novelty-seeking' is a human behavior fed by specific temperamental and personality traits as well as the need for cognition on the motivational side. Novelty-seeking behavior is here considered as the root of the whole process of novelty-finding, novelty-production, that is the creative process and subsequently also the

innovation process. Clearly, novelty-seeking individuals have biological and personality foundations, which let them experience things differently than less novelty-seeking individuals. Apart from that, in the lucky combination with other required personality traits their novelty-seeking temperament may make them more likely to experience novelty-finding. This in turn combined with the need for mastery and achievement makes them more likely to actually ‘produce’ their finding and to make it visible to others. The product, which the individual has created, then becomes the target of social comparison and judgment. If it is judged as novel it may become an innovation. Another set of personality traits supports this final process. The temperament and human need of “novelty-seeking” is therefore assumed as the root of the whole process. In contrast, the innovation process may be completely cut off from this process. The psychosocial chain between novelty creation and innovation is an utterly fragile one. Weaknesses in any of the components may be compensated by strengths in another component. For instance, individuals, which are biologically and/or personality-wise not as novelty-seeking as comparable others, may still have more perseverance to see projects through and be more extrovert in presenting their ideas to the respective environment. Also they may experience better social support for having their ideas judged as novel. In this way it may happen that such individuals become recorded in history as famous novelty-seekers while other individuals with the higher novelty-seeking score will not.

To prevent misunderstandings: all human beings are novelty-seeking to a certain degree, since novelty-seeking is a human temperamental trait. All those actively engaged in the novelty creation process are novelty-seekers, no matter what their innovative performance will look like afterwards. This book *is* about novelty-seekers and you - as its reader - are a novelty-seeker too. Whether you are a mild, high or severe novelty-seeker is the question. Those individuals in this world and in its history in whom we assume an above average novelty-seeking temperament today, have also had the luck or ability to elicit the social recognition for their novelty-seeking behavior.

On the basis of the Novelty Generation Model (NGM) I would like to suggest a number of key research questions, that summarizes the main arguments presented in this chapter:

- Do the dopamine receptor genes DRD4, DRD2-A2 and the dopamine transporter gene SLC6A3 influence creative behavior via the novelty-seeking temperamental trait?
- When engaged in the processes of novelty-seeking, finding and producing,

are highly novelty-seeking individuals more likely to show higher brain activation in the mesolimbic dopamine pathway and particularly in the *nucleus accumbens* than lower novelty-seeking individuals?

- Is there an N-shaped relationship between the novelty-seeking scores of individuals and their performance in the creative process? This is to say: Are extremely low and extremely high novelty-seekers likely to achieve lower novelty-production records than individuals with only slightly above average novelty-seeking scores?
- Do highly novelty-seeking individuals run a particular risk of suffering from substance-related disorders and mood disorders? Is the risk particularly high in a social environment where their need for cognition, or mastery and achievement needs remain unsatisfied?
- Which are the specificities of social comparison and social judgment processes in the process of turning a novelty into an innovation?
- Which are the most adequate forms of social support to novelty-seeking, creativity and innovative performance respectively?
- What are the factors mediating social support to the novelty-seeker?

The last three research questions will be the focus of the following chapters. This chapter forms a theoretical foundation for an in-depth study of the social psychology of support to novelty-seeking, creativity and innovative performance. If highly novelty-seeking individuals as well as the people surrounding them do not manage existing novelty-seeking needs well, this may come with high social, psychological and biological costs. Due to various idiosyncracies described in this chapter, highly novelty-seeking individuals may develop very specific strategies to reach or maintain their well-being, and are in need of different forms of social support than lower novelty-seeking individuals. Also the kinds of support seem to differ which are required at different stages in the processes of novelty-seeking, creativity and innovative performance, as well as the different stages of a novelty-seeker's professional development.

CHAPTER THREE

THE PSYCHOLOGY OF SOCIAL SUPPORT TO NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE

Creative minds always have been known
to survive any kind of bad training.

Anna Freud

3.1 SELF-SUPPORT AND SOCIAL SUPPORT TO THE NOVELTY GENERATION PROCESS

Social support as a variable influencing novelty-seeking and creative behavior as well as innovative performance has long been neglected in social psychological research. Even the research history of social support in general is a relatively short one in social psychology (Stroebe & Stroebe, 1996). Only in the last two decades has interest in social support increased. To study support to novelty-seeking, creativity and innovative performance, *social support* may be related to *self-support*. Novelty-seeking individuals find self-support in their novelty-seeking personality and genetic set up (see chapter two) and in the intrinsic motivation they experience. This chapter addresses how social support interacts with self-support and how it may complement it in the novelty generation process.

Social support takes two forms: *interpersonal support* and *impersonal support*. Novelty-seekers may receive interpersonal support within families or organizations, whereas public support institutions, governments and markets are sources of impersonal support. Psychologists have paid attention to the

interpersonal forms of social support, and left the more impersonal support forms to other disciplines such as economics and political sciences. As some forms of impersonal support are directly conferred to individuals and therefore have direct psychological effects seems to have made this subject matter less attractive for economists to research. They usually study impersonal support granted to institutions or whole sectors and industries and abstract from psychological phenomena. Specific impersonal support forms like grants and awards that are conferred directly to individuals seem to have fallen into a no-mans-land between the disciplines. Industrial-Organizational psychologists have not paid attention to the psychological effects of impersonal support to populations of individuals within industries.

I shall now discuss some basic ideas on social support from the social psychological literature on interpersonal social support which may also be of use in the impersonal context. Also, I shall complement this with the bits and pieces available in other relevant research streams: motivation literature, especially research on the receipt of rewards and their effects on intrinsic creative interest and performance (see for instance Eisenberger & Armeli, 1997); innovation and creativity literature, where the term ‘support’ for innovation is used mainly synonymous to the notion of an appropriate climate for creativity and innovation (Amabile, 1996); and literature on the arts and sciences including biographical information on famous novelty-seekers, which provide rich examples of the psychological mechanisms typical of the novelty-seeking professions. Figure 3.1 on Support to the Novelty Generation Process (presented below) makes reference to the *Novelty Generation Model (NGM)* introduced in the previous chapter and serves as a departure point for this chapter. The motivational, personality and genetic elements are classified as “self-support” and it specifies social influence and social judgment.

Any component of the NGM may receive support: the process of novelty-seeking, the creative process or the innovation process. Social stimulation and social recognition are probably the most important mechanisms of social support to the novelty-seeking individual. Just like some specific drugs discussed in chapter two can function as pharmacological stimulants or depressants of novelty-seeking behavior, social stimulation or social recognition, in its most extreme form called ‘fame’, may also be conducive or aversive to the different components of the novelty generation process. Looking at the definition of innovative performance presented in chapter two, social support in the form of social recognition is per definition inherent in the innovation process, while support in the form of social stimulation is more relevant to the creative

process. If novelty-seeking professionals do not make the transition from mere novelty-seeking behavior to novelty-finding and production, they are unlikely to receive continued social support, neither in the form of social recognition, nor stimulation for their activities. The innovative performance of individuals partly reflects their capability to secure social support for themselves. Social support can facilitate, but can also interfere with novelty-seeking, creativity as well as innovative performance.

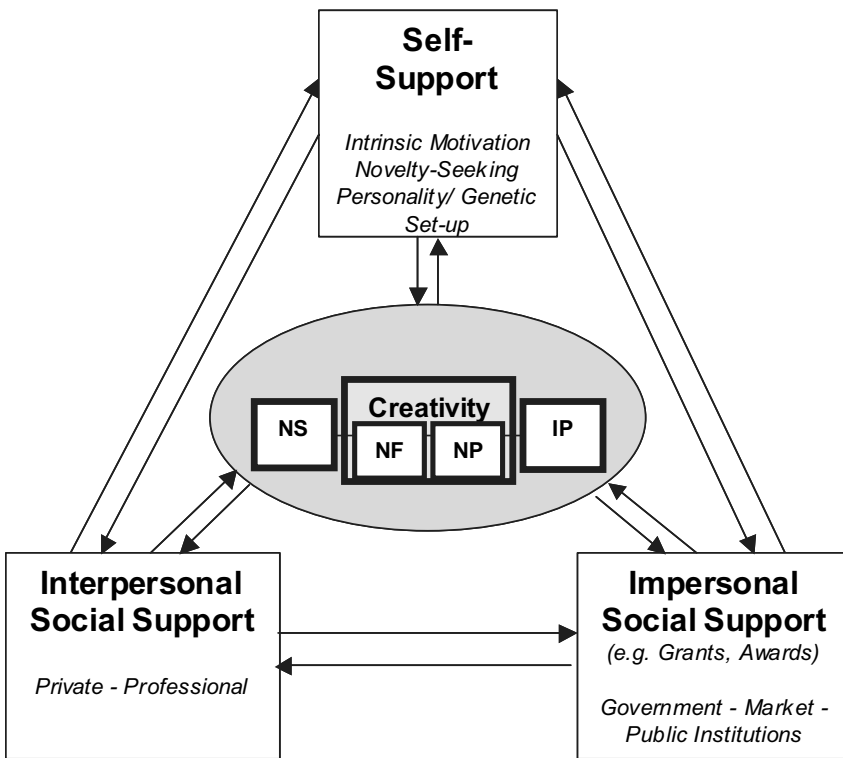
In practice, *impersonal, individual-directed support* is frequently an issue in professions in which novelty-seeking belongs to the essential characteristics, such as the arts or the sciences. This is not surprising given that novelty-seeking does often not pay off initially and is therefore more dependent on social support than operations in less novelty-seeking professions. Far less frequently discussed in practice is the interpersonal form of support, which is also crucial in highly novelty-seeking settings. In fact, social support constellations of famous novelty-seekers in this world's history have often remained implicit. But first of all: what *is* social support to novelty-seeking and innovation? What are its various sources, forms, modes, and psychological effects? Eventually, the last section of this chapter will focus onto two specific *impersonal, individual-directed support forms* of social support: awards and grants. It is often stated in the objectives of grants and awards that they are supposed to support individuals in the novelty-seeking professions. But do they really support novelty-seeking, creativity and innovative performance? What are the hidden agendas behind grants and awards? How do awards and grants as impersonal support forms interact with the self-support and the interpersonal support an individual may have? How do they assist the transformation of a novelty into innovative performance? This chapter and also the following one prepare the ground for Part II of this book, dedicated to a thorough quantitative analysis of these specific support forms in one of the novelty-seeking professions: literary publishing.

3.2 A SOCIAL-PSYCHOLOGICAL DEFINITION OF SUPPORT TO THE NOVELTY GENERATION PROCESS

Support in its most basic meaning is “provision”, a term which in turn is used synonymously with the terms ‘sustenance’, ‘funding’, ‘funds’, ‘care’, ‘financial assistance’; secondly, it includes “backing”, which is synonymously to ‘encouragement’, ‘help’, ‘assistance’, ‘aid’, ‘defense’, ‘espousal’, ‘cooperation’, ‘collaboration’. Clearly the first set of terms is more impersonal, whereas the

second set is more interpersonal. The above terms all describe *social* support. Social support refers to all forms of support given or received from the social environment (see for instance Stroebe, Stroebe, Abakoumkin, & Schut, 1996). The focus in the social psychological literature has been on interpersonal forms of support and the different ways in which different types of support can affect mental and physical health (Stroebe & Stroebe, 1996) Four types of support, which have widely been agreed to contribute to the health and well-

Figure 3. 1: Sources of Support to the Novelty Generation Process



Note. NS = Novelty Seeking; NF = Novelty-Finding; NP = Novelty Producing; IP = Innovative Performance

being of the support receiver (House, 1981) are: (1) *emotional support*, which in terms of the psychodynamic perspective on novelty-seeking provided in the previous chapter would include the satisfaction of esteem needs and needs of

intimacy; (2) *validational or appraisal support*, which would satisfy the need for affirmation, feedback and social comparison; (3) *informational support*, which would simply be advice of any kind; (4) *instrumental support*, which would include any material or financial aid mainly (Stroebe & Stroebe, 1996, p.599). Emotional and informational support forms are usually associated with interpersonal settings. It can be argued that for impersonal support to novelty-seeking and innovative performance, instrumental and validational support will be most relevant. Instrumental support embodied in awards or grants such as financial or other material support create time and freedom to seek novelties and to pursue the transformation of findings into innovative performance. The same thing may happen via validational support: When conferred publicly in the form of an honorary award for instance, it may build up status for the receiver of this support.

Individuals with different temperaments and personalities may differ in their preferences for different types of support, and also in their responses to them. For instance, to strive for social recognition or fame as an external motivator reflects an individual's achievement needs. This can be argued to relate to a need for validational support. Just as biological psychologists have identified differences in individuals' biological reward systems (Blum et al., 2000), we may argue that the social reward systems of individuals differ. Perhaps social rewards as conferred in fame may create tolerance, so that larger doses are needed to achieve the same effects. Thus social reward might have addictive effects just like alcohol. This argument can be illustrated by a behavioral explanation of depression in people who have stopped working in their sixties: It is amongst others the lack of social rewards and validation experienced in a job which leads to depression (Comer, 2002).

Support is also a medium carrying norms, values and goals of the support providers who see their potential support targets in line with their own ideas of what is support-worthy or not. In that sense, social support ranks among the social influence factors on novelty-seeking, creativity and innovative performance (chapter two). In the social psychology literature, the term social support has been very rarely used in the context of innovation. In one particular research stream on minority influence in the context of social influence theories, social support to innovation is conceptualized as group-related support to non-conformity (Doms & Van Avermaet, 1985). In creativity research, the term 'external support' has been mentioned as a 'general factor supporting creativity' (Amabile, 1983b).

Whether a specific type of *intended support* indeed turns out to be *factual support* also depends on the receiver. After all, giving and receiving is a form

of social negotiation. Also, imposed versus self-controlled support have very different psychological effects. The need for support has also been identified as a key factor moderating the individual's negative reaction to imposed (even if well-intended) support (Deelstra et al., 2003). Imposed social support is support provided without asking, whether this support is at all wanted or needed by the receiver or not, which possibly causes the novelty-seeking individual - who receives interpersonal support without asking for it- to react negatively. Are such psychological mechanisms also relevant to support imposed by impersonal sources? Can it be argued that due to the impersonality this may be predicted not to be the case?

Social support in its most adequate form can be argued to offer the novelty-seeker an extension to his/her own human capabilities, that is it complements the individual's self-support. In situations where the capability of one human party has reached its limits or is not sufficient to master the situation, social support is efficient. The self-support that individuals may find in their genetic and personality characteristics (see chapter two) as well as intrinsic motivation patterns, combine with the different types of support coming from concentric social circles surrounding an individual. Together they influence the degree to which individuals engage in novelty-seeking behavior and the degree of innovative performance they may achieve. However, it should be noted that social recognition for individuals in the novelty-seeking professions may be withheld by the environment, if the novelty-seeking self-support of these individuals is highly substituted by interpersonal and impersonal support. The visibility of strong support by the social environment seems to weaken the reputation of genius.

The less social support novelty-seekers are perceived to receive, the more likely social judges attribute their performance to self-support including mental brilliance and ingenuity, and this may lead some artists to gain the highest social recognition. This subtle link explains the phenomenon of famous artists being secretive on their sources of support such as dedicated mothers, muses, lovers and spouses, as well as financial support. There is a stereotype of the isolated and poor artist, who despite deprivations produces brilliant content (one may for instance think of Jackson Pollock who emphasized his image as highly authentic 'working-class hero'). This constellation may earn novelty-seekers higher social recognition, and in such a degree that artists from more well-to-do backgrounds may hide their background in order not to forgo a reputation surplus linked to the deprivation stereotype. Only impersonal support received earlier may be said to work as an indicator of an individual's future potential, in that it signals the

earlier support providers' expectations about the supported individual to potential supporters in the future. In the case of interpersonal support the signal may be less beneficial for the reputation of the artist, except when the support came from a reputable novelty-seeker, and even then the difficulty for the support receiver consists in separating his or her own image and work from that of the famous supporter. The dividing line between support as a signal adding to the reputation of the creative genius and support subtracting from this reputation, is a question worth researching from a social psychological perspective.

If the complementarity of social support with self-support does not take place in a directly constructive manner, as discussed above, social support may either turn out to be non-supportive, counter-productive or, very importantly, may turn into 'negative support'. What is negative support? Conflict and resistance to change have been considered as a common result of attempts to innovate (West, 2000), but it can also be considered as its precedent: Factual support can come in a negative mode via stereotypes, ignorance, resistance, excess support and even destruction. All this can motivate individuals with a particular personality set-up to do their very best and use the resistance as a form of negative support. Resistance from the social environment means that this environment pays attention and invests energies into the target it resists. Zero support or indifference may be the most useless in supporting novelty-seeking and innovative performance, except for strong egos, who may even perceive mere indifference as a form of provocation. The negative support mode will be discussed in more depth in the next chapter on stereotypes with respect to gender, maturity and organizational affiliation. Negative stereotypes can turn out to interact with the refusal to offer support and can form a source of negative support for the stereotyped: For instance stereotyping can generate the energies for social change processes engaged in by those who are disadvantaged (Reynolds, Oakes, Haslam, Nolan, & Dolnik, 2000).

One may ask whether an approach in which creativity is a natural outcome of an individual's high levels of self-aware consciousness on the way to well-being (Cloninger, 2004) does account for such cases of negative support. This approach had been described in the previous chapter. An answer may be that negative events increase the individual's need for restoring his/her well-being. The need for higher levels of self-aware consciousness may be particularly strong when challenged by negative conditions. In that sense, increased creative outputs under conditions of negative support may be explained as by-products of an individual's increased striving for reaching or restoring his/her well-being.

To sum up the two preceding sections *social support to the novelty generation* process can be defined as:

Provision from interpersonal or impersonal sources in the social environment facilitating or interfering with the novelty-seeker's self-provision by affecting the processes of novelty-seeking, novelty-finding, production and innovation, either via a positive or a negative mode.

3.3 SOURCES OF SUPPORT TO THE NOVELTY GENERATION PROCESS

3.3.1 THE CENTER OF SUPPORT TO THE NOVELTY GENERATION PROCESS: SELF-SUPPORT

The most valuable source of self-support that novelty-seekers can have is their intrinsic motivation to seek the new. Individuals who need to be propelled by others to generate novelties can be said to be less self-supportive than individuals who have the intrinsic motivation to produce something. High scores in TCI Novelty-Seeking combined with high Scores in Self-Directedness (Cloninger, Przybeck, Svrakic, & Wetzel, 1994) are key elements for self-support. An individual is intrinsically motivated if he or she 'performs an activity for no apparent reward except the activity itself. Extrinsic motivation, on the other hand, refers to the performance of an activity because it leads to external rewards (e.g. status, approval, or passing grades)' (Deci, 1972, p.113).

Here, a central question is where the individual has his/her 'locus of perceived reinforcement' (Weiner, 1986) or 'locus of control' (Rotter, 1966). The distinction has been made between people primarily oriented towards the environment and others who are primarily oriented towards their self as a source of reinforcement. The so-called *internals* credit themselves with the ability to control the occurrence of reinforcing events, whereas *externals* perceive reinforcing events as under the control of luck, chance or powerful people in their environment, and see less of a connection between their own behavior and what happens to them. Internally-controlled novelty-seekers may be more able to deal with external complexity and ambiguities. Also, *manded behavior*, which means under external control, has been distinguished from *tacted behavior*, which is under one's own discretion (Bem, 1972), and in colloquial use we see the terms *self-propelled* versus *alien-propelled*. Self-propelledness has the connotation of proactive instead of reactive.

An important aspect of self-support is that even the highest degree internals do in some way or other compare themselves to others and perform acts of self-evaluation, an act we may want to label *validational self-support*. Apart from that, also *instrumental self-support* is part of the novelty-seeker's self-support: Novelty-seekers may for instance decide to sacrifice certain luxuries or greater parts of their life time to allocate more instrumental resources to their novelty-seeking activities. Finally, there is *negative self-support*, which can for instance occur in the form of internal constraints and defenses already discussed in chapter two.

Different motivational and personality set-ups can be related to the individual's likelihood to perform different types of creativity. Intrinsic motivation is highest in the *proactive type of creativity*, which results in a volunteered solution to a discovered problem, as well as *contributory* creativity, which generates a volunteered solution to a specified problem. In contrast, extrinsic motivation is higher in the *responsive* or *expected* types of creativity, which are not volunteered (Unsworth, 2001, p.291). Being 'an internal' and displaying proactive, intrinsically motivated behavior may be described as crucial to the self-support of the novelty-seeker.

3.3.2 INTERPERSONAL SUPPORT ISSUES: PRIVATE AND PROFESSIONAL

In the next support circle, support may come from the *private interpersonal* realm, such as the familial environment or (in)formal relationships. They may act as support sources and often are the individual's main sources of emotional support, a dimension not to be underestimated in discussions of support systems of novelty generation. Furthermore, interpersonal support can come in the *validational* form, that is recognition and feedback to generate a feeling of competence in the individual receiving it, and constructive information on how to improve (Deci & Ryan, 1985). Also *instrumental* support can be conferred in this realm. Power and dependence issues that may arise under all social support conditions have arguably the strongest psychological implications in the interpersonal forms of support. Mechanisms taking place between mutually satisfying providers and receivers of support stretch from the satisfaction of the receiver's need for support to the supporter's satisfaction of the need for control or esteem. The nature of the psychological effects is likely to depend on the relative status of the supporter and the supported. An in-depth *Diagnosis of Human Relationships (DHR)* (Cloninger, 2004, p.168) can also serve to get a clearer picture about the

interpersonal support conditions under which a novelty-seeker operates.

Many novelty-seekers in the history of art and science have managed to secure familial or professional positions for themselves in which they were – often within silent consensus - the ones who consumed most of the attention and absorbed most of the available support. For instance, this may be instrumental support. Sigmund Freud for instance, is said to have been the only one amongst all his siblings being granted a study room on his own (Gay, 1999). This may also be validation support such as being praised and being the pride of the parents (Albert, 1983). The support-absorbing behavior of novelty-seekers often seems to be considered as normal by those who surround them. For example they are often exempted from communal tasks, which other family members feel obliged to share. These individuals seem to acquire a high capacity of eliciting social support from their environment. One may label it a high support-absorptive capacity, a key ingredient of which it is to render others cooperative to further their own goals. Sibling envy in the face of such parental support differences is a common phenomenon. However, there are also examples in which the family environment has been conducive to further the novelty-seeking tendencies of more than one of their children. For instance Jan and Nico Tinbergen, the brothers who received Nobel Prizes in Medicine and Economics have both been supported tremendously by their family environment. Their parents organized scientific discussions at their home and encouraged curiosity and unconventional thinking in their children (Kruuk, 2004). Developmental psychology suggests that privileged positions in childhood may prepare the individual for equivalent roles in adult life: The early experience of tolerance towards support absorption within a family setting may equip the absorbers with a predisposition for egocentrism and an expectation of privileged positions also in later interpersonal relationships. Also access to first-rate mentors is very likely to be facilitated by previous interpersonal support in the familial setting. Using longitudinal data, it was found that continued support of a mentor during the period of idea generation in an occupational sphere correlated strongly with the number of recognized creative contributions produced by a novice - including differences between male and female protégés' needs for different kinds of support (Torrance, 1983).

There has also been research on the effects of responsibilities and social pressures of being a spouse and a parent on creative writers (Pohlman, 1996). Here it has been found that such social situations usually hinder female writers from receiving support for their novelty-seeking while they support male writers. Looking at personal lives documented in the history of the arts and sciences, constellations of balanced mutual support and respect within marriages or affairs

between highly novelty-seeking individuals are rare: The writer couples Lillian Hellman and Dashiell Hammett as well as Virginia Woolf and Vita Sackville-West belong to the few famous examples of couples who managed to live more balanced support relationships (Chadwick & De Courtivron, 1993, p.11). Apart from such exceptions it is historically documented that highly novelty-seeking individuals have often oriented their official partner choice to the likelihood of the partner to perform a wide range of supportive functions. Thus emotional and romantic attachment were often traded against support. If the supportive performance of the partner were to diminish (for instance due to the partner's increasing awareness of the exploitative arrangement), highly novelty-seeking individuals are likely to decide to move on to the next partner, a mechanism illustrated par excellence by the documented life of Picasso (Gilot & Lake, 1964).

The interpersonal intimate relationships between novelty-seekers in art history have mainly reflected 'male intellectual systems of support (teachers, critics, journalists, publishers, curators), complemented by female systems of domestic support, which nourished the endeavors of a Rodin, Malraux, Ernst or Tanguy, but inhibited those of their companions' (Chadwick & De Courtivron, 1993, p.9). A phenomenon well-known in this context are polygamous settings where supportive tasks are distributed among a steady official partner doing the novelty-seeker's groundwork and changing covert partners who are more likely to hold the positions of muses. The muse can in fact be considered as a specific form of private interpersonal social support to the novelty-seeker. This has been widely documented, for instance in the life of Rodin, who decided to formally stay with his long-term companion Rose, who was highly supportive to him in practical matters, instead of officially committing himself to his great love and fellow artist Camille Claudel. Rodin was aware that Claudel would continue living the life of an artistic novelty-seeker herself, and that she would be unlikely to take on the myriad of practically supportive tasks which Rose silently performed, such as cooking meals and bringing them to Rodin's atelier every day. Also, Claudel would have been unlikely to tolerate his polygamous private life (Ayrat-Clouse, 2002).

Biographies of famous artists and their partners provide rich evidence that being the partner of an extreme novelty-seeker comes with the mental health risks that may accompany one-sided, exploitative support constellations. A whole theory of psychopathology could be built around such distortions and misstates in social support relationships with novelty-seekers. Exploitation is 'a grant or one-way transfer of an exchangeable, whether explicit or implicit,

that is regarded by the grantor at least as illegitimate (Boulding, 1981, p.83). The perception of having received an illegitimate grant can give the receiver an exploiter status and the provider the status of the exploited, depending on the perceptions of both parties. Here we clearly see the ethical code built in social support interactions. Here the motivation of the receivers to return something will depend on the importance they assign to remaining honorable in the eyes of the provider, which directly links to the respect paid to the support providers.

In the next concentric circle professional interpersonal support has its place. For instance, research on perceived organizational support for innovation (Eisenberger, Fasolo, & Davis-LaMastro, 1990) may fall under this heading. This type of research has referred to firm-internal contexts rather than the organizational affiliation settings emphasized in this book, typical for novelty-seeking professions such as Art and Science. Why do novelty-seeking individuals decide to affiliate themselves to organizations in the first place? What is the role of these organizations in the overall support status of their novelty-seeking affiliates? What kind of support do organizations have to offer to their novelty-seeking affiliates? These questions will be discussed in chapter six which explores the organizational affiliation setting in more detail.

To what degree is an organization willing to support highly novelty-seeking individuals? The motivation behind lending support to novelty-seeking individuals is the hope that the output of the individual will benefit the firm with respect to its status in the industry and on the longer run also financially. A whole list of factors has been offered in the creativity literature as to what *organizational climates* in the arts, sciences and industry should *not* be like, if they were supposed to support creativity. Fostering fear of failure, which results in a reluctance to take risks; a preoccupation with order and tradition; a failure to see the strengths of the individuals working in an organization; an over-reliance on ineffective algorithms; employees who are reluctant to assert their own ideas; a reluctance to play; an excessive use of salient reward (Amabile, 1983a, 1996). In contrast, the conditions cited in the literature as favorable to innovation are: a climate conducive to new ideas combined with an established process for developing these ideas into products; an organizational structure flexible enough to bend with the requirements that innovation may bring; support for innovation from the highest levels of management (Amabile, 1983a, p.202; 1996, p.256).

As mentioned above, little social support literature refers to novelty-seeking, creative behavior and innovative performance. Closest to the issue of creativity, social support has been linked to intrinsic motivation (Van Yperen & Hagedoorn, 2003). Intrinsic motivation has been identified in the previous chapter as a key

factor in the process of novelty creation. Investigating the interaction between job demands, job control, and job social support on fatigue and intrinsic motivation simultaneously, van Yperen and Hagedoorn identify work conditions, which minimize job strain and maximize intrinsic motivation in highly demanding jobs. Confirming earlier studies on intrinsic motivation, it has been demonstrated that a controlling style of interaction towards their subordinates had a detrimental effect on their intrinsic motivation. Autonomy with respect to what and how organizational members carry out their work supports their intrinsic motivation (Richer & Vallerand, 1995). Also it is argued that *instrumental support* defined here as 'help from others to get the job done when things get tough' increases intrinsic motivation because it increases the individual's confidence that the work will be finished, creating feelings of relatedness with others (Vallerand, 1997; Van Yperen & Hagedoorn, 2003, p.5). High levels of intrinsic motivation were found in less demanding jobs when job social support was high. Regardless of job control and job demands, high job social support turned out to be the most effective way of enhancing intrinsic work motivation (Van Yperen & Hagedoorn, 2003). So, it has been concluded that instead of reducing job demand and thereby decreasing productivity, it was better to improve job control and job social support to reduce strain and keep employees intrinsic work motivation high. These issues have less relevance in some novelty-seeking professions than in others. For instance, in a research institute this will be more relevant than for a literary publisher, where the working time spent in contact with the organizations is usually lower than that of the scientific novelty-seeker in a research institute.

Last but not least, there is also a source of support which mixes the professional interpersonal realm with impersonal support characteristics. This is the aggregate of colleagues and competitors who spread across a whole industry, who may or may not be interpersonally related to the novelty-seeker. They are the reference group of social comparison for the individual, they are colleagues, dead or alive, who personally or impersonally help the novelty-seeker to participate in forming, mirroring or confronting the norms and standards of a field in an impersonal manner (Becker, 1982, see especially Chapter Eight on 'The editorial moment').

3.3.3 IMPERSONAL SUPPORT: FOUNDATIONS, GOVERNMENTS AND THE MARKET

Outside the concentric circles of private and professional interpersonal support there is the realm of impersonal support sources including public institutions, foundations, government and the market. As explained in the introduction,

research on impersonal support sources has largely been left to economists and public policy researchers. However, the psychological perspective in this domain is indispensable for understanding the workings of impersonal support, which is directly conferred to the individual.

In some cases, blurred boundaries between interpersonal and impersonal support sources can elicit social disapproval: for example, the more interpersonal characteristics a support action carries that is officially supposed to be impersonal in nature, the less social recognition it earns. Accusations of nepotism in conferring grants and subsidies for novelty-seeking projects are a good example here. The reverse also applies: when interpersonal support, for instance from the familial environment, has more characteristics of impersonal support, it is likely to be perceived with suspicion by the social environment. Consider, for instance, the example of adult artists relying on familial financial support for their projects.

Governments or any other public institutions have the possibility to put strong incentives in place for individuals such as researchers or artists to engage in the novelty generation process. Impersonal support providers motivate their support for novelty-seeking individuals among others with the expectation of benefits for whole occupational fields and society at large. Such institutions may be international, national or regional. Science, technology and the arts are probably the most frequently investigated sectors with respect to impersonal support forms like subsidies. Examples are 'indirect government support', such as tax rebates to private individuals and institutions who support arts institutions by gifts, in other words, support through 'uncollected taxes', or 'direct public support', which is direct aid from the government including fixed subsidy per person in the attendance of art events (Frey, 2000).

Another source of impersonal support is what economists call 'the market' which may be defined here as the aggregate of all those individuals who provide instrumental as well as validation support to novelty-seekers by buying or selling their products. In fact, the bulk of consumer piracy constitutes withheld market support to the novelty-seeker. However, traditionally, strong support from the market has often been considered a problematic and less recognized form of support as perceived by artistic novelty-seekers, since relying on market support would constitute bowing to capital, a threat to artistic expression as commented sharply among others by Baudelaire (Benjamin, 1997). This extreme attitude against market support has been propagated as the highest code of honour in the artistic field (Bourdieu, 1992). On the other hand, heterodox economists pledge for an approach 'not of condemning the market economy, but of stressing the

need to circumscribe and moderate it and of showing once more its dependence upon moral reserves' (Röpke, 1960, p.129). Giant corporations, in the sense of *richesse oblige*, 'each must remain conscious of the responsibilities which his privileged position entails (...)' . Roepke writes: 'I have in mind the patronage of art in the widest sense, generous grants for theatre, opera, music, the visual arts, and science- briefly, for everything whose existence and development would be jeopardized if it had to "pay"... '(p.132). In the sciences the same issue is raised. Think for instance of the discussion around industry-sponsored research versus 'independent' science. Awards and grants as impersonal support forms directed to the individual will be dedicated a separate section in this chapter incorporating also the evidence concerning the psychological consequences of social support which will be discussed in the following.

3.4 PSYCHOLOGICAL ANTECEDENTS AND CONSEQUENCES OF SUPPORT TO THE NOVELTY GENERATION PROCESS

3.4.1 SUPPORT CONSTELLATIONS: THE NOVELTY-SEEKER BETWEEN SELF-SUPPORT, INTERPERSONAL AND IMPERSONAL SUPPORT

Psychological antecedents and consequences of social support have been widely studied (see for instance Sarason, Sarason, & Pierce, 1989). However, they have not been studied in an impersonal realm. Referring to the overview of support sources presented in Figure 3.1 above, individual novelty-seekers may be distinguished according to their support sources. Self-supporters may be distinguished from individuals who receive interpersonal support from individuals who receive their support from the professional interpersonal realm. A balanced support status may draw from all circles. Support deficits in one of the circles may lead to compensatory behavior of the novelty-seeker that is trying to draw excess support from other circles. The psychological complications attached to such imbalances may affect the novelty-seeker, his/her social environment as well as the outcome of the creative process. A number of these support interactions will be discussed in the following.

3.4.2 HOW IMPERSONAL SUPPORT INTERACTS WITH OTHER IMPERSONAL

AND INTERPERSONAL SUPPORT SOURCES

Due to the limited control of impersonal support providers such support may easily be transformed by its receivers into support to something else than the intended. For instance, grants and subsidies may be used for different projects than originally intended. Also, different impersonal support forms may substitute each other, for instance support given to the unemployed and support officially given to novelty-seekers. Unemployment benefits have proven to constitute an important source of support for the work of novelty-seekers in the arts. A good example is the so-called *Melkert-baan* in the Netherlands, a job category meant as a transitional regime between unemployment and employment, which allowed unemployed individuals to receive a small benefit from part-time employment in addition to their unemployment benefits. While the logic behind this support measure was to facilitate the re-integration of the unemployed into the labor world, a specific phenomenon occurred in the art sector, where more and more individuals worked under this Melkert construction, while full integration into formal employment never took place. In this way, unemployment benefits supported artistic activities.

The continuous search for a healthy mix between governmental support and market forces has remained a key topic for art policy makers and researchers for decades, especially in countries with overall strong governmental support such as the Netherlands or Norway (De Glas, 2003). Artists and scientists tend to prefer support from government and public institutions to market support. One of the reasons is the negative influence of market support in the social judgment process concerning a potential novelty - as already indicated in the previous section. However, in contrast to the majority of cultural studies scholars who argue that market forces tend to undermine creativity (see for instance Bourdieu, 1992), some economists have argued that market forces can stimulate creativity and that government support can be potentially damaging for creativity in the arts (Frey, 2000).

Other economists have emphasized the problem of *impersonal* government support interfering with the *interpersonal* support, which actors may obtain if they communicate sufficiently with other actors in their professional environment (Klamer, 1996). In the Netherlands in the mid-nineties 'government subsidies which were meant to stimulate the arts and enhance their value were said to stifle the artists' own initiative and impoverish the world of arts, that is, they are about to realize the opposite of the intended objectives' (ibid, p.27). Government support is here argued to unnecessarily free art producers from taking their responsibility

concerning interpersonal communication with the other actors in the value chain of their products. Translated into the terminology of the Novelty Generation Model presented in Chapter Two, professional interpersonal support is suggested to assist the novelty-seekers better in making the transition from creativity to innovative performance than does impersonal governmental support.

On the other hand, however, it may be argued that impersonal support from the government directed to the individual also facilitates interpersonal support, at least in cases of impersonal support that come with certain publicity and status effects. Given the psychological mechanisms underlying social judgment processes (see chapter two), impersonal support from higher status sources may lead the interpersonal environment of the novelty-seeker to trust and follow the social judgment of the higher status source with respect to the support-worthiness of a novelty-seeker. For instance: a novelty-seeker who has won an award may more likely be selected for a higher status organizational affiliation.

In general, criticism seems to be directed to grants and subsidies rather than to awards. There is obviously a difference between support in the form of grants and subsidies on the one hand and awards on the other. This difference will be laid out in the last section of this chapter.

3.4.3 HOW IMPERSONAL AND INTERPERSONAL SUPPORT INTERACT WITH SELF-SUPPORT

What are the effects of depending on others? Insights from the extrinsic versus intrinsic motivation debate (for instance Eisenberger & Armeli, 1997) may be of help here, as well as knowledge about the personality factors and genetic set-up constituting the novelty-seeker's self-support. Any influence can produce extrinsic motivations in the novelty-seeking individual. The good side of external impulses is highly underrated in the creativity-intrinsic motivation debate. If intrinsic motivation were the only good in the creative process, any interaction of novelty-seeking individuals with their environment would be undesirable. However, there have always been researchers arguing that extrinsic motivation does not only have undermining effects to intrinsic motivation, but that it may also be additive (Vroom, 1964). Even if the external motivation distracts novelty-seekers from intrinsically motivated direction they work towards, the social support may still give impulses, which may retrospectively be judged as constructive support to the process of novelty generation. Creativity researchers have implicitly written about such social support to creativity using terms like 'synergistic' or 'informational or enabling extrinsic motivation' which is described

as conducive to creativity as opposed to ‘controlling extrinsic motivation’ which is argued to destroy intrinsic motivation (Amabile, 1996, p.119).

The supportiveness of external impulses arguably depends strongly on the timing with which they enter the novelty generation process. At some stages extrinsic impulses may add the necessary moment to an intrinsically motivated work, which may reach stagnation at some point in time. Pressures generated by an impersonal aggregate of competitors may support the novelty-seeking process by increasing the self-support of the individual, namely the intrinsic motivation to seek something completely new. Later in the innovation process when the individual seeks social recognition for her/his potential novelties, such external pressures may also have a supportive effect. However, external pressures are less likely to facilitate the creative conceptual stage of idea formation, where task focus (as discussed in chapter two) is the most conducive.

An interesting condition with respect to extrinsic motivation is the extreme dose of impersonal validation support in the accumulation of world fame. This form of support has to be handled with caution, since it has been found to interfere with intrinsic motivation and self-support to novelty generation. Why is it that some novelty-seekers who achieve world fame stay completely normal and keep producing, while others become exalted and actually cannot handle their fame? An explanation can be offered, which combines the biological and social insights presented in the previous chapter. Novelty-seeking personality has been postulated to be modulated by dopamine transmission (Cloninger, 1994; Cloninger, Svrakic, & Przybeck, 1993) and the role of dopamine in the rewarding effect of external stimuli such as drugs has also been demonstrated in pharmacological experiments (Wise & Rompre, 1989). Also we have seen that individuals differ in their dependence on rewards. It has never been investigated whether social stimuli like social recognition travel the same dopamine routes and may substitute for stimuli derived from novelty-seeking. So, a very different way of looking at fame and its effects is to take into account the different levels of dopamine-modulated novelty-seeking in individuals. Psychotic states of delusions about their own grandeur (related to increased dopamine levels) have been witnessed in quite some composers, writers and painters in this world’s history. Famous examples are Tchaikowsky, Rachmaninoff, Hemingway and Jackson Pollock.

In the other extreme, individuals grossly underrate the degree to which they can support themselves. Excess interpersonal support such as excess control or evaluation has been argued in the previous chapter to interfere with the intrinsic motivation individual and their capability to support themselves. Particular

norms and values can predominate in the social environment of an actor, which withhold the actors living in these settings to become self-supportive, but rather keep them dependent, as has historically been the case with female novelty-seekers (Millet, 1969). The motivation to keep others from becoming self-supportive and providing them with excess support instead, is often a question of power and/or insecurity of the support provider. In its most extreme form, it keeps the dependent from becoming self-supportive while in addition negating social support as well. Both supporting an actor or withholding support from an actor, means to exert a certain degree of control over this actor (Foucault, 1965). It means higher chances for the supporter to make the actor comply with the aims of the supporter. The mental set-up of humankind naturally includes such conscious or unconscious power strivings. These are situations, which may fire intrinsic motivation of those discouraged from becoming self-supportive via the negative support mode discussed above.

Financial motivations, which are part of striving for market support, have also been argued to interfere with the self-support obtained from intrinsic motivation (Amabile, 1996). Equally, applying for support from public institutions may reduce self-support in that it often leads to compromises and possibly opportunistic behavior in individual novelty-seekers. Applying for support also implies complying with the rules of the support providers. Artists, may come to know that there is funding for new media projects, and as a result many artists decide to apply for this and produce kinds of work which they would not have produced when purely supported by their intrinsic motivation. Such mechanisms are for instance likely to be set off after the ministry of the arts publicizes their vision and plans for the next administrative period (e.g. the so-called “Cultuurnota” in the Netherlands) and the key words are picked up by those who seek grants. People may end up dividing their attention between the task they were intrinsically engaged with and the extrinsic goals (Lepper & Greene, 1978).

3.4.4 HOW EXCESSIVE SELF-SUPPORT AND PRIVATE INTERPERSONAL SUPPORT INTERACTS WITH PROFESSIONAL AND IMPERSONAL SUPPORT

There is a difference between being able to obtain support and being able to accept it. An individual’s *ability to obtain* support of others includes that the individual has to be able to convince others that he or she is worthy of being supported. It also means having the self-confidence concerning one’s work (see in the Novelty Generation Model (NGM) in chapter two, figure 2.1) and an accurate evaluation

of its potential performance with regard to the norms of the supporters. This also implies a certain dependence on the judgment of the supporters. In this sense, every form of support could be a potential threat to the intrinsic motivation of the supported as discussed above, especially in the case of strong differentials between the norms of supporters and the supported.

At this point, the novelty-seeker's *ability to receive* is decisive. Fears of being controlled or dominated in the novelty generation process as well as issues of pride may interfere with a novelty-seeker's ability to accept support offered by others. The need for independence may lead the novelty seeker to refuse social support, which can be an expression of defensive behavior. A shining example is the support-refusing behavior of Baudelaire in such contexts (Bourdieu, 1992). Depending on the situation, such defenses may indeed facilitate self-support, but may also be a sign of excessive self-support. The decision to give uncompromising precedence to self-support eliminates the possibility of constructive stimulation from the social environment. Workers in novelty-seeking professions are per definition ideally highly self-supportive, however they can be excessively self-supportive within their specific domain of novelty-seeking, which expresses itself in stubbornness and inability to accept any advice or criticism from others. This often stands in gross contrast to their absorption of social support in auxiliary domains of practical life, which do not directly affect their novelty-seeking activities, but enable it practically as discussed in an earlier section. There are artists like Marcel Duchamp, who have taken an arrogant pose towards social support and would have never applied for any funding, since they did not want to have anything to do with the establishment (Tomkins, 1998). Other artists may refuse to accept honorary awards as a public expression of their contempt for the establishment. Novelty-seekers may also opt for drawing on financial support from familial interpersonal sources in order not to have to bow to any of the standards related to impersonal or organizational support. This may be also out of fear that they are not good enough to stand a chance in the competition for certain grants and awards and therefore never apply, or because they are simply not proactive enough to write proposals and applications. These are all cases in which novelty-seekers forego potential impersonal support and substitute it by support from other sources.

3.5 THE PSYCHOLOGY OF GRANTS AND AWARDS AS IMPERSONAL VALIDATIONAL AND INSTRUMENTAL SUPPORT TO THE INDIVIDUAL

External evaluations, either positive or negative, do not foster psychological health, but rather prevent us from being completely open to our own experience.

(Rogers, 1959)

3.5.1 GRANTS AND AWARDS: A TYPOLOGY

Some prizes and grants can be won on the basis of chance, while others are performance-related. The latter are conferred on the basis of social comparison and judgment processes. There are also mixed forms of chance and performance. For instance cases in which it takes a particular level of performance to enter a particular pool of potential winners, while the final award or grant winner is determined by a draw. Purely performance-related grants and awards are similar to rankings in which the outcome of social comparison and social judgment processes is published. Grants and awards usually conferred in novelty-seeking professions are usually performance-related. They constitute impersonal forms of instrumental and validation support mostly conferred to individuals directly. In order to receive support novelty-seekers have to prove that they have potential. Then they may receive grants. In that sense such forms of support are always also a form of reward. This action of proving something may already be perceived as external pressure by some personality types and may divert them from their intrinsic route of novelty-seeking. This may be one of the reasons why some novelty-seekers in the history of the arts and sciences have never applied for any impersonal support for their work or have refrained from affiliating themselves professionally.

In practice, except for the judicial meaning of the word 'award' for instance in the context of patenting of inventors (Graham, 1946), it is mostly used synonymously to the terms 'prize', 'honor', 'reward', 'decoration' and 'medal', whereas the term 'grant' has the connotation of funding and scholarship. To avoid misconceptions: Grants are not only for novelty-seekers at the start of their careers. Also novelty-seekers at later stages in their careers apply for grants. Also, awards and grants share a spectrum of characteristics and are therefore sometimes used synonymously. Not only in practice has this created confusion,

but especially in an attempt to grasp these constructs theoretically the distinction between grant and award is not sufficient. In the intersecting area between the award which honors and the grant which provides funding, there is a third, hybrid form, which I would like to label 'stimulation award'. A 'stimulation award' already provides recognition, but also is supposed to stimulate production. The publicity around grants is usually lower than around awards, although also here we have a spectrum ranging from high status to low status grants and high versus low status awards differing in their effects on the novelty-seeking and innovation context. Bestowing grants in the same ceremony as awards and subsuming them under the same umbrella name is an excellent strategy of to increase their social recognition value - that is in fact a way of turning simple grants into stimulation awards. This practice can be observed in some countries, e.g. Germany. More detailed characteristics of these different award and grant types are presented in Appendix A.

An abundance of research has been published on the subsidization in the arts and sciences, mainly to whole institutions or indirectly to the consumers of the novelty-seekers' outputs. Also innovation researchers have dedicated most of their research efforts on R&D subsidies. However, grants and awards as a particular type of impersonal support provided *directly to the novelty-seeking individual* have been grossly neglected in research. Due to the individual-directed nature of grants and awards the psychological effect of these support forms is a highly relevant research issue. In practice, during recent decades a great number of awards or prizes have been established and attention to this phenomenon has risen sharply. This also manifests itself in the abundance of sector and country-specific documentation of awards and grants available to artists and scientists (see for instance: Wiesand, 2001) and detailed descriptions of different national support sectors (Wiesand, 1980). However, scientific research on awards has been scarce and restricted to either general anecdotal studies, or to economic research on the effects of famous awards on market performance. For instance, Oscars and their economic effects on distribution and revenues have been discussed in detail (Doods & Holbrook, 1986). Also a few detailed sociological or historical accounts of particular awards can be found. They discuss procedures for nomination, award categories, and ceremonies; they also include theoretical discussions on awards as a reward system, critics and peer recognition, the Oscar's effects on films and the winners' careers, skyrocketing salaries, international stardom, and societal politics. All these issues are mostly discussed with reference to the Oscars (Levy, 1987; Osborne, 1989) or the Booker Prize (Todd, 1996).

Only very recently in the economics of the arts and culture, more specific

consequences of award processes have been investigated, such as jury composition, ranking and competition aspects on the outcomes of awards have received some attention (Gleiser & Heyndels, 2001). In the management literature the Grammy awards ceremonies have been investigated as rituals and shapers of field evolution (Anand & Watson, 2004). Four roles of award ceremonies have been examined, mainly by qualitative analysis: distributing prestige in a situated performance, attracting collective attention of a field, bringing up and resolving conflicts in a particular field, and ‘tightening horizontal interlocks’ within a field. Another focus of this study is on the award’s impact on sales.

The distinction between grants, stimulation awards and honorary awards has not been made in research on awards so far. Also, what about the content development and the development of the award winners in a field? The role of awards with respect to novelty-seeking and innovative performance has been overlooked so far. Coming closest to this potential research area is recent research on why those individuals belonging to the group of Nobel laureates are so innovative (Shavinina, 2003). Reasons are drawn from autobiographical and biographical information. However, this research does not discuss the innovativeness of a Nobel prize winner as related to the award events themselves.

With respect to research on grants, research is even scarcer and stems from the economics and public policy literature. Kenneth Boulding considers grants as a whole sector of an economy and argues that we have to understand better the ‘pathology of the grants economy’ (Boulding, 1981, p.15). Discussing the issue of grant efficiency, Boulding mainly takes the perspective of support providers, mostly in an interpersonal realm: He argues that love, as well as fear are the major motivators for giving grants- the givers provide a grant, because they truly find something worthy of subsidy. On the other hand, they may do so out of fear of negative consequences. Restaurant owners in mafia contexts are mentioned here as the most extreme examples in this context. This falls under the category of giving a grant or an award in order to secure the receiver’s goodwill (p.4).

Boulding discusses some general psychological traps that grant providers have to be aware of. First, he argues that they may be caught in an identity related to a certain environment, for which one has already made a good deal of sacrifices, and that giving too many grants asks for too much sacrifice on the side of the giver and cause pathological relationships. This relates to the second trap: dependency on the side of the receiver, which may call for resolution or revolt at some point. Boulding mentions the ignorance trap, which describes the lack of feedback and information processes between grant givers and the actual outcome produced by means of the grant. This is an important point: support may be

given with the aim of stimulating innovation, while it has hardly been measured properly whether these subsidies really lead to innovative outputs. As Boulding writes ‘good intentions are no excuse for bad results, and the arrogance of the ignorant good-doers turns them into do-gooders and undermines that necessary function of doing real good, without which society cannot exist for very long’ (p.124-127). So ‘granting behavior’ including the decision-making process to issue grants to those who merit them has been the focus in research on grants. However, psychological processes within the receivers of grants have remained out of focus.

I would first like to define three key formal criteria along which grants, stimulation awards and honorary awards can be distinguished. Firstly, an important criterion is the *status factor*: Publicity around awards is usually much higher than for grants. Therefore awards usually create more public validation support and thereby increase the status for the receiver. Whenever the judges dominating a field take an award into account in their judgments about a potentially novel product, the status embodied in an award has created validation support. The status creation potential, which an award has, depends on the status carried by the involved factors, apart from the award winners, also the status of the judges and the awards themselves (Wiesand, 2001). Grants usually focus on instrumental support. However, in award systems where specific awards have also grants linked to them that are conferred in the same ceremony, grants become stimulation awards. They also confer publicity, while with respect to the instrumental support dimension they are like grants. The second criterion lies in the *application/nomination factor*. Usually novelty-seekers can apply for grants, while they usually cannot apply for honorary awards. They have to be nominated for awards. For stimulation awards this aspect varies between application and nomination. Usually only for awards surrounded by a certain degree of publicity does ‘being nominated for an award, but not winning it’ constitute a certain degree of support for the nominated individual. Being in the selection procedure of a grant usually does not have this effect. The third criterion is the *timing factor*. Impersonal support can be conferred in a *pre* or *post hoc* mode with respect to the novelty generation process. Honorary awards are usually conferred *post hoc* to honor past and present performance, whereas grants usually relate to future work. Grants tend to come in before or during the creative process, whereas honorary awards are more likely to reach the producer as a response to already achieved innovative performance. Stimulation Awards may lie in between these conditions. From a longitudinal perspective, grants may constitute spread payments, whereas awards usually always come in the form of lump-sum support.

An important and more general question concerning these different award types is: Who and what is supported by them? In the case of grants and stimulation awards it is often made very clear in the publicized objectives that they seek to support the receivers in their work. However, for honorary awards the social support structure looks more complex. Honorary awards may for instance also support individuals other than the receivers: for instance young professionals who witness the conferral of an honorary award to a more mature professional and feel encouraged by this. Finally, there are honorary promotional awards that have also not yet been distinguished in the literature yet: Although presented as honorary awards, they actually serve neither the honoring nor stimulating of the award winner, but the promotion of something else, while the winner and or jury are supposed to generate publicity for it by their high status in the industry. A more detailed description will be provided in a later section. In sum, for all these grant and award forms it has to be taken into account that they may be intended to have certain supportive effects. However, whether this intended support is turned into factual support perceived by the receivers is another thing.

3.5.2 GRANTS VERSUS AWARDS: STIMULANTS OR DEPRESSANTS TO NOVELTY-SEEKING AND THE CREATIVE PROCESS?

What are the psychological effects of grants, stimulation awards and honorary awards during the novelty generation process? To which components of this process they are most related and with which motivational and personality components they interact (compare the NGM Figure 2.1 in Chapter Two), will be discussed in the following. This section first discusses the effects of awards and grants on the individual's novelty-seeking and creative behavior.

A highly novelty-seeking personality is marked by strong reactions to reward stimuli or conditioned stimuli, as well as activated systems for obtaining reinforcement (see chapter two). However, the understanding of different psychological effects of social support and reward stimuli like grants and awards on the individual is still poor. The overall support constellation of individuals, their personality characteristics, as well as genetic predispositions and motivational set-up may in fact be hypothesized to operate together in a person's psychological response to an award or a grant. Just as individuals can experience a malfunction in the biological reward center, the social psychological reward centers may differ from individual to individual. Some may have a greater need for social rewards than others. Individuals may for instance have been educated to be more or less dependent on external rewards.

Within the different phases of the novelty generation process, different types of social support are likely to have different effects on the novelty-seeker. Given its formal characteristics such as the timing of its conferral, a grant has its greatest impact on the novelty-seeking and creative process. The following responses to rewards have been described in the psychology literature: firstly, rewards may increase motivation, and also rewards may help novelty-seekers to learn about their social position by the mechanism of social comparisons, the outcome of which may encourage or discourage them (Festinger, 1954). Secondly, awards which already contain a higher degree of social recognition may interfere with the individual's self-supportive level via the complacency/ *overjustification effect* (Bem, 1972; Kelley, 1973). In the social psychological literature the overjustification effect suggests a negative relationship between external reward upon an individual's activity and the individual's intrinsic motivation to engage in that activity. Creative individuals may start asking themselves whether they are creating something for these external rewards or because they are really intrinsically motivated to do so. This question may sometimes be followed by a need to create a situation in which the answer is unambiguous, which either means blocking external rewards or stopping the activity itself. These are constraints to creativity via constraints to intrinsic motivation (Amabile, 1987; Deci, 1971, 1972; Lepper & Greene, 1978).

Evidence that this problem exists among creative people can be found in (auto)biographies and many letters sent between individuals in the novelty-seeking professions. I would like to return to the examples with which I opened this book: the letter of the poet Anne Sexton written to her friend W.D. Snodgrass shortly after he had won the Pulitzer Prize for poetry. There she warns him not to lose his intrinsic motivation for writing his poetry: 'To hell with their prize and their fame. You have got to sit down now and write more "real"...write me some blood. That is why you were great in the first place. Don't let prizes stop you from your original courage, the courage of an alien.' (Sexton & Ames, 1977, pp.109-110) Clearly, the Pulitzer Prize for poetry is an honorary award. It comes with an immense amount of publicity and social recognition. So it can be assumed that the threat of interfering with intrinsic motivation is more present in the case of honorary awards, because this type of awards are marked by strong validation effects and public expectations.

Similar effects have been experienced by writers after having launched a successful first novel. Like after receiving a prestigious award, first novelists report to be far more aware of this sense of implicit expectations from the public, which may easily result into a 'writer's block'. As the novelist Thomas Wolfe

wrote ‘Almost a year and a half had elapsed since the publication of my first book and already people had begun to ask that question which is so well meant, but which as year followed year was to become more intolerable to my ears than the most deliberate mockery: “Have you finished your next book yet?” “When is it going to be published?”...now, for the first time, I was irrevocably committed so far as the publication of my book was concerned. I began to feel the sensation of pressure, and of naked desperation, which was to become almost maddeningly intolerable in the next three years.’ (Wolfe, 1936, pp.49-50).

What sets off such psychological effects is the implicit agenda of social expectations behind grants and awards, which are comparable to those raised by the reception of a gift (Schwartz, 1967). Awards and grants both come with an obligatory response component, so psychologically they oblige receivers to realize and to make use of the goodwill that others have given them, or to raise up to the expectations that others have with respect to them. It seems to be the burden of having to confirm the characteristics, which social judges assumed when deciding to confer the award, also the expectations, which the award created among the audience of an award event. The receiver’s sensitivity to such external obligations indeed varies according to the personality of the receiver. High TCI Self-Directedness and Self-Transcendence (Cloninger et al., 1994) is arguably the best protection against the potential threats of such external rewards.

A wide array of qualitative empirical evidence supports the intrinsic motivation hypothesis in the context of tangible rewards for performed actions, external control, like for instance imposed deadlines by others (Amabile, 1996, p.15; Kruglanski, 1975; Lepper, Greene, & Nisbett, 1973; Ross, 1975). So, if individuals are concerned with received or expected rewards during the creative process, this may interfere with the creative process. Writing an application or proposal for a grant comes with the exact opposite of ‘low levels of evaluation expectation’, which have been argued to be conducive to creativity (Amabile, 1983a, p.202). However, this has to be specified: these influences will be more severe, if the grant’s requirements do not match with the intrinsically determined direction of the novelty-seeker’s work. Also thinking about grant requirements during the creative work after having received the grant can have similarly constraining effects.

It may be argued that a U-shaped relationship exists between the maturity of the project and the desirability of social support in addition to self-support. In the first phase, novelty-seekers will need some degree of social comparison to see what is there, what others have done and how they stand in relation to them and then need a phase of closure. In the conceptual phase, the novelty-seeking

temperament and personality as well as intrinsic motivation can provide the individual with crucial portions of self-support. What follows is an elaboration phase in which the perseverance trait becomes key. When this elaboration is maturing, a phase begins which is often experienced as slow and boring by highly novelty-seeking individuals. They want to get on to the next project. Amabile and Collins for instance argue that in the often tedious process of working out the details of a project, developing fully and presenting the product to others extrinsic motivators may play a facilitating role as opposed to the early stages of creative thinking (Collins, 1999, p.306). As soon as the elaboration of the novelty is finished the full portion of social support is desirable. Here the presentation of novelty to a public begins: social recognition for the novelty is the form of social support, which is most desirable in this phase.

Cases in which receiving an honorary award leads to a drastic reduction in the work motivation of the winner may also bring the painful insight that previous work motivation may in large parts have been based on achievement needs rather than the intrinsic motivation of seeking and creating something novel. As soon as this achievement is there, the work motivation drops. In that sense, awards can also function as a painful mirror probing the winner to think about his or her motivations in the novelty generation process.

Norms and standards embodied in the criteria of grant and award schemes of course always imply rewards for that kind of behavior, which meets the normative requirements and on the other hand sanctions for deviating behavior. Often, participants in a field feel that they first have to establish themselves by generating products which are more accepted in the mainstream, not radically innovative, but rather incrementally so (Becker, 1982, p.203-204). They establish themselves in the rankings of the industry, win awards, and make themselves a "name". However, novelty-seeking by definition is deviating behavior, except if 'seeking and finding novelty' as such is the norm. We would think that in novelty-seeking professions 'novelty' is the standard which distinguishes novelty-seeking professions from other professions (Luhmann, 1995, p.85 & p.369). But even if novelty-seeking and finding is the norm there may still be normative limitations concerning the ways in which novelty may be sought, found and presented. It is in these limitations that novelty is often lost in the novelty-seeking professions. Extremely novel ideas may go socially unrecognized because they are not presented in a format in which the establishment considers them for judgment in the first place. '(Mavericks) propose innovations the art world refuses to accept as within the limits of what it ordinarily produces. (...) Whereas integrated individuals accept almost completely the conventions of their work, mavericks

retain some loose connection with it, but no longer participate in its activities' (Becker, 1982, p.233). Against this background, awards and grants may halt the most extreme forms of novelty generation, for instance also the emergence of new genres. Radically novel work is less likely to receive grants and awards at all. Exceptions will be awards and grants, which are explicitly given for novel products and processes. However, usually the criterion is outstanding achievement or quality and only rarely novelty is a key word in the norms and values represented in the description of awards and grants (see the content analysis in Appendix A).

The aggregate of awards can be seen as reflecting a cross-section of the norms and values predominating a sector and we have also seen above that receiving support in the form of grants or awards is also a sign that the support providers perceive the receivers in line with their own norms and goals and therefore consider them as support-worthy. In that sense an award and grant system in itself may represent counter forces to the novelty generation process since it gives incentives to potential award winners to present work, which meet the requirements of certain norms. This would mean for instance that those actors in an industry, which have received most support in the form of grants and awards may not be rated within that same industry as the most radical novelty generators.

The exception would be grants and awards, which are given explicitly for novelties, and not for conforming to norms and standards. Though, such awards are rare. Usually all awards implicitly honor something new, because something old, is not considered prize-worthy within the novelty-seeking professions. Besides this implicit novelty-criterion, grants and awards factually serve all sorts of competing purposes, such as keeping established status intact and also protecting and supporting certain groups, which have formed within the field. I would like to argue that especially honorary awards are apt to fulfil this preservative function, since they come with the highest amount of public validation support to arouse creative modeling.

So, grants and awards seem *not* ideal to support radically creative processes, but more apt to support incremental novelty generation? If novelty-seekers can apply themselves for grants they run the risk/chance that they will unconsciously write proposals or adapt their work to the guidelines and norms of a particular award/grant scheme. Also, awards are social psychological tools for provoking creative modeling. 'How do artists know they are through, when to stop painting or writing? Their decisions on these matters often take into account the way other members of the art world will react to what they decide. (...) Artists can predict

accurately, because the artistic process is so conventionalized' (Becker, 1982, pp. 203/204). Seeing an established writer being honored may encourage young writers to do their best, which also comes with the downside that the persuasive nature of strong validation support may encourage young producer to follow the honorary creative model instead of seeking something genuinely different and new. In this sense, awards and grants may in fact be contra-productive to novelty-seeking and on the other hand impede the innovative performance of genuine novelties which may not have been awarded but have to compete with the social recognition of awarded products. Many famous writers, for instance Slauerhoff in the Netherlands, ridiculed awards since they found that the winners, by accepting an award, in fact conformed themselves to the norms which society expresses in them (van Krevelen, 2003).

In sum, it can be argued that grants are at least more likely to support creativity than stimulation and honorary awards for various reasons: Most importantly, grants are conferred before or during the creative act and do usually not come with validation support through publicity. In contrast, honor and stimulation awards come with social recognition, potentially a strong external motivator not without risks to intrinsically novelty-seeking and creative behavior.

3.5.3 GRANTS VERSUS AWARDS: STIMULANTS OR DEPRESSANTS TO INNOVATIVE PERFORMANCE?

Innovative performance as defined in the previous chapter is the novelty-seekers' ability and willingness to receive social recognition for the potential novelties they present within a particular environment. Awards have long been considered as criteria in the social recognition for the production of new ideas in a particular occupational field (Roe, 1953; Zuckerman, 1974). Since social recognition is more important in the innovation process than in the novelty creation complex, it can reasonably be argued that the stimulation award plays a central role in helping the individual to cross the threshold to innovative performance. Honorary awards in contrast are more likely to be a response to previous performance rather than a supporter to it. The question is, whether they honor innovativeness or other qualities of a producer's work.

Honorary awards conferred to individuals in the novelty-seeking professions can be directed to particular products. Criteria of such awards either focus on characteristics of the products' content, or characteristics of the form. Secondly, honorary awards can be directed towards the whole oeuvre of a particular

producer or towards promotion and support of a particular field with a novelty-seeking professional. Finally, honorary awards can have other objectives such as the promotion of a new technology in the industry in which the awarded individuals work. The honorary award's effect on the award winners' innovative performance depends on which of the above objectives the award has.

Within the overall social judgment a novelty-seeker undergoes in the innovation process, stimulation as well as honorary awards can be considered a specific element within the overall social judgment situation enfolding a specific group of judges, the jury, who handle a particular set of standards, criteria, norms and beliefs (Schweizer, 2003). The social judgment process of an award takes place within the overarching environment of social comparison, for instance an industry or sector of an industry or a scientific field. Awards legitimate their winners and influence the social comparison and judgment processes about them (discussed in the previous chapter). An award is called a 'distinction' – a factor on the basis of which winners distinguish themselves from the others. This may create contrast effects as perceived by the environment. The more social importance and publicity an award has, the more social influence it has and the higher the chance that it can create majorities in positive judgment about the novelty presented and thereby the producer's innovative performance. Judges in organizational settings may decide to offer affiliation to such a 'distinct' individual on the basis of award information. In this sense, awards may allow for access to good affiliation facilitated by such a contrast effect. Within the career of the individual interactions between different grants and awards may occur. For instance, receiving an award may increase the likelihood of an individual to receive grants of a higher financial value. Here we may distinguish pre-award grants from post-award grants.

On the other hand, winning an award and accepting it makes the winner member of a particular group: social judgment processes on the interpersonal and impersonal level transfer status from the jury and previous award winners. This means that the validation support of awards also flows in a longitudinal and impersonal way between the novelty-seekers who have once won the award. The signals concerning the novel quality of a presented product sent out by the award committee distinguishes those who are favored by the criteria in the social judgment process from those who are not. However, novelty-seekers often do not seek to be perceived as a member of a group favored by the current norms and criteria. Rather they seek to contrast themselves away from such groups. In the most extreme cases the refusal of a prize occurs which has (1) a contrasting effect on the novelty-seeker, and (2) a potentially devaluating effect on the status

of the award depending on the strength of the status held by the novelty-seeker who refuses it.

Since it is a well-known risk that after greatest honors and social recognition for one's work individuals may display reduced novelty-seeking behavior and potential focus on external motivation, social judges may assume that someone who is highly honored is less likely to produce novelties. As T.S. Elliot expressed it: 'The Nobel Prize is the ticket to your own funeral'. This may either imply that one has to be very old to receive such an award, or that nobody expects anything groundbreaking from the winner after such an award. Here the honorary award affects the social judgment process with respect to future novelties presented to an audience (see chapter four on the maturity stereotype). Social judges are unlikely to expect that performance, which is crowned by the Nobel Prize can be topped by the winner within his or her own career. So, honorary awards seem to have a connotation that does not go together well with the expectation of innovative performance after their conferral. They are likely to depress the novelty creation process as explained above. However, they may also be depressing in a very different sense: All too often non-novelties are socially judged as novel due to a social network, which is willing to spread fame for a lemon. Though, very important is the jury type: what kind of jury can be argued to best judge what is new and therefore can support innovative performance by conferring support to the producer of the novelties? Here two main types of juries can be distinguished: (1) juries who have the expertise about the contents they judge. Either individuals who are producers themselves as well as close observers of the production field can be considered as experts in the field. (2) Non-expert juries, such as juries consisting of sponsors. The judgment of expert juries will be far more likely to be respected in the field and therefore expert juries are arguably more apt to support the innovative performance of individuals than sponsor juries.

The selection procedures varying from application to nomination are also an important factor in whether awards or grants stimulate innovative performance—usually ground-breaking novelties have to convince society first, they require the initiative of the novelty producer. It seems self-evident that procedures of application go together far more with such initiative for new ideas than nomination procedures. It can be argued that support for the new is rather applied for than that the new is nominated for support.

While creativity and innovative performance had not been addressed in previous research about honorary awards, increases in sales as reviewed above were the focus of quantitative research on awards. However, in fact, sales are just one aspect of a wider mechanism, which is the counterpart to production:

proliferation of an individual's work. Increases in proliferation may indeed show themselves in an increase in sales, but also in re-productions, new editions of the same work. The publishing industry with new editions of previously produced work is a good example. Honorary awards with their high amounts of publicity and social recognition are an excellent tool to promote the proliferation of the winner's work. Honorary awards then lead to an increase in economic performance rather than innovative performance.

A lot of questions have to be asked about an award and grant system: Where does most money flow to: Is it conferred together with honor, or is it spent on stimulation and support before the creative act? What if the Nobel prize did only come with 1 euro, would not the tradition of being grouped with other brilliant minds be honorable enough? Do stimulators of cultural and scientific innovation have to bond honor with high instrumental support? Or would not exactly the opposite be more apt to promote creativity and innovation in a sector? Why give high instrumental support to those who have reached the top of their careers? High maturity writers usually have reached sufficient support from the market in the form of instrumental as well as validational support. Is it at all possible to confer high instrumental support while keeping the detrimental validational publicity low?

3.5.4 GRANTS AND AWARDS AS A RESPONSE TO THE GENERATION OF NOVELTIES

The impersonal support forms of grants and awards have in the foregoing been treated as independent variables to the dependent variables innovative performance and creativity. This is only one way of looking at it, since innovative performance and creativity can also be the independent variables in this context. In order to receive a grant, one already has to have displayed some creative performance to become eligible. The same holds for stimulation awards. However, for these two types of support this reversed relationship will be far less relevant than for honorary awards: Innovative performance is the outcome of social recognition and honors received are among the strongest expression of this recognition. Therefore innovative performance is most likely not to be the outcome, but a key input to receiving an honorary award.

Especially one particular type of honorary award is highly unlikely to be an input to the winner's innovative performance. I would like to label such awards *promotional awards*. As soon as novelty-seeking professionals have achieved a particular status level, they may be approached by award foundations to

support the promotion of these foundations' goals. People may have often asked themselves why honorary awards come with high sums of money, while the famous and successful in fact do not need this money as badly as those at the start or in the middle of their careers. The explanation for this is that a reversed support mechanism is at work here, which explains the high sums conferred in such 'promotional award events'. They can be considered as a sort of salary for the awarded individual to lend his or her name to the foundation's end. Here the authors can capitalize on their 'name'. This is a very particular class of awards, where the honoring is not the core event, but only a cover-up for actually promoting something on a second agenda. It is an intelligent psychological trick to award someone, which creates the impression that this person is supported by social recognition, while this is only a cover-up for actually hiring such an actor for the purposes of the award foundation. In fact such award ceremonies are a thoroughly calculated support exchange: we give you money and you lend us your name. Thus, instrumental support for the award winner, but no validation support is conferred. This means: no increase of the winner's innovative performance to be expected after such an award event.

In the empirical part of this book a case study will be offered to support this argument. The 'International eBook Award' is an example of a media-stimulating award, which seeks to promote a new media technology within the traditional book publishing industry (Schweizer, 2003). By means of this 'promotional award', the award foundation (sponsored by the eBook developing technology firms), seeks to benefit from the status held by the selected award winners or the status of famous jury members invited from the traditional social judgment arena of book publishing, which this new technology is supposed to transmit. In exchange for this status transfer from the book publishing circuit to the media technology, the invited high-status actors profit financially from the award procedure. So, within the award range there is indeed a turning point where the status of the awarded actors is higher than the prestige of an award. We can hypothesize that in this award class the award moneys are higher than in the class of awards, which are meant to honor as a first and only agenda. The promotional award also illustrates the difference between awards with covert versus overt agendas.

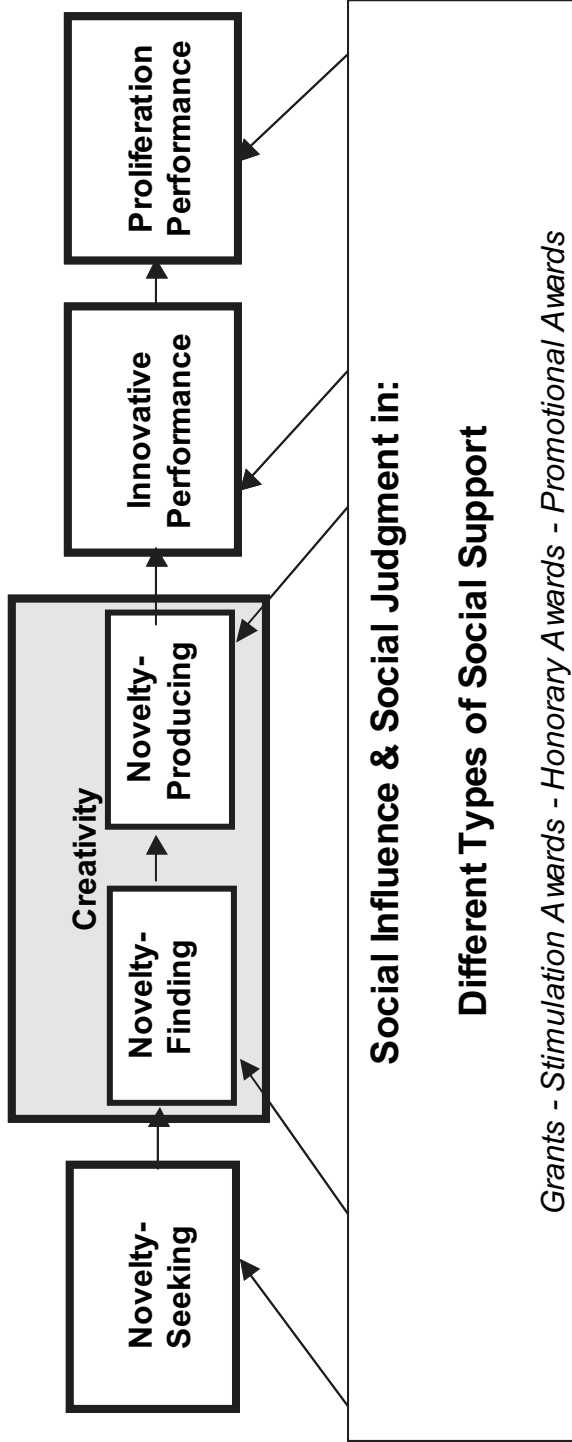
3.6 SOCIAL SUPPORT TO THE NOVELTY GENERATION PROCESS: SOME HYPOTHESES

In this chapter it has been argued that the overall support constellation of individuals, their personality characteristics, as well as genetic predispositions and motivational set-up operates together in an individual's response to an award or a grant and determines their effects as stimulant or depressant of the novelty generation process. The framework presented in Figure 3.2 combines the notion of social support with the Novelty Generation Model introduced in the previous chapter. In this model, the proliferation variable is added. Proliferation is different from the novelty generation process (and therefore not included in the NGM in chapter two), but also highly relevant after a product has been recognized as new. However, and this is what Figure 3.2. indicates, it is also possible that awards support the proliferation of a product that has not been judged as new. Also included in Figure 3.2 is social support (validation and instrumental support forms). These support forms relate to the NGM in that they in fact represent media of social influence and social judgment. Appendix A provides a summary of the most important award and grant types and their key characteristics, based on the above discussion as well as a content analysis performed on a grants and awards compendium that will be used in the empirical part of this project.

As explained in the introductory chapter, for scope reasons the empirical part will only address a selected fraction of the NGM, namely only a part of those directly related with the innovative performance component. Within the more specific Figure 3.2. focused on the social support context this involves the concepts of productivity, innovative performance and proliferation (see Figures 7.1 & 7.2 in Chapter Seven). Within this focus the following basic hypotheses can be derived from the arguments presented above:

- H3.1 *Awards and grants conferred by expert juries are more likely to support the innovative performance of the receiver than juries consisting of sponsors.*
- H3.2 *Awards and grants proceedings via application are more likely to support the innovative performance of the receiver than proceedings via nomination.*
- H3.3 *Honorary Awards are unlikely to support an increase in the innovative performance of the receiver.*
- H3.4 *Grants are more likely to support the winner's innovative performance than stimulation awards.*

Figure 3. 2 Social Support to the Novelty Generation Process and the Proliferation of the Novelty



- H3.5 *Promotional awards do not affect the innovative performance of the award winner.*
- H3.6 *Honorary awards are likely to lead to an increase in the proliferation of the award winner's previously produced work.*

In the next chapter, some of these basic hypotheses will be refined by taking interactions with stereotypes into account.

CHAPTER FOUR

SOCIAL SUPPORT AND NEGATIVE STEREOTYPES IN THE NOVELTY GENERATION PROCESS

I've found that the chief difficulty for people was to realize that they had really heard new things: that is things that they had never heard before. They kept translating what they heard into their habitual language. They had ceased to hope and believe that there might be anything new.

Petyr Demianovich Ouspensky

4.1 WHAT IS NEGATIVE SUPPORT?

Having discussed the positive support mode in the previous chapter, this chapter takes a look at the opposite mechanism. External as well as internal perceived constraints may breed extraordinary performance. Negative stereotypes can lead to the refusal of social support to the stereotyped and can in that way either come to paralyse the development of the stereotyped, or in the best case be a source of negative support for them by activating extraordinary self-support within particular personality types. Indeed, stereotyping has been found to generate the energies for social change processes engaged in by those who are disadvantaged (Reynolds, Oakes, Haslam, Nolan, & Dolnik, 2000). Also withheld grants and awards can be mediated by stereotypes and can generate energies among those who never receive them.

Negative stereotypes are only one potential medium of negative support to novelty-seeking and creativity, in fact a social one. There are also biological ones, such as low serotonin which may express itself in negative mood states fostering creativity (George & Zhou, 2002). As argued in earlier chapters, such mood states may challenge the novelty-seeker to intensify his/her striving for well-being. Depending on the personality and social environment of the challenged individual s/he may opt for creative behavior as a way to achieve or restore well-being. Negative support may fire the receiver's motivations, though only if the receiver is able to transform negative impulses into positive self-support. Again, a personality marked by TCI Novelty-Seeking, Self-Directedness and Self-Transcendence (Cloninger, Przybeck, Svrakic, & Wetzel, 1994) seems important. Particularly visible in social forms of negative support- one may for instance think of the condemnation of new styles or new ideas in art and science, which have often proven to be the key ingredient of their later fame-resistance and constraint may promote autonomy, and autonomy again is related to increased creativity (see chapter two). In particular personality structures destructive impulses can generate the highest motivation 'to prove them wrong'. The punishment of a child, which is hoped by the parent to ultimately result in an increase of the child's well-being has been called a 'negative grant' (Boulding, 1981, p.27). It is in a similar sense that hardship through a significant deficit of support and counter forces such as prohibitions may particularly motivate an individual to get ahead. In the organizational context a good example of such negative support mechanisms around prohibitions and their outcomes are 'smuggled projects' (Knight, 1967, p.484) secretly organized without the official authorization of the responsible management. However: these are clear cases of external motivation with all the downsides that come with it (see chapter three).

Probably the most aggressive form of negative support to development may be labeled *supportive destruction*. The term 'creative destruction', a term also used in the economic context (Schumpeter, 1919) fits in here, which stands for cycles of destruction followed by cycles of creation. Supportive destruction may be compared to what gardeners do to trees: cutting off as much as possible without killing the organism to stimulate growth. It is of utmost importance to know the right time when to cut and whether the tree is strong enough to survive this cut. In contrast to trees or economies, human beings can experience, interpret, and express pain. This brings up ethical considerations and issues of social responsibility with such methods of negative support. It can be assumed that the positive transformations that some personality types manage on such negative impulses constitute contrast effects created by deliberately moving away from the sources of negative impulse. Highly novelty-seeking personalities will be

more likely to seek out such a form of support since it is in their temperament to expose themselves to challenges and seek out the borders of their mental and physical existence. The sum of constructive social support received by the individual from other support sources during such an experience of supportive destruction is arguably an important predictor as to what degree the individual is able to transform negative impulses into positive outputs. Responsible behavior of the negative support providers in this context includes a thorough assessment of the risks involved in destructive actions including an assessment of the overall support constellation of the individual in question.

Other forms of negative support are for instance childhoods marked by constraints to exploratory behaviors, such as an up-bringing in a climate of conservatism or hyper-religiosity (Thielman, 1998). The form in which an individual reacts to such constraints, again, depends on the individual's personality and genetic set-up, for instance 'stimulation-seeking children may provide for themselves a more potent and continuous environmental enrichment than traditional environmental enrichment can provide (...)' (Raine, Reynolds, Venables, & Mednick, 2002, p.672). In a developmental process called *niche-picking*, novelty-seekers seek out experiences and create environments for themselves which are compatible with their inherited tendencies (Scarr, 1996). These individuals are likely to decide for entering one of the novelty-seeking professions at some point, if they have this opportunity to compensate for earlier constraints and increase their well-being.

Finally, history shows that emotionally difficult interpersonal relationships have often been a breeding ground for creativity. Ralph Waldo Emerson and his disciple Henry David Thoreau are an excellent example here: Their relationship was marked by 'adversarial interaction' (Cloninger, 2004, p.175): they had many fights and 'Emerson and Thoreau each felt emotionally unsupported and hurt by the other's behavior' (ibid., p.176) which finally also led to a breaking-up of the close relationship- as Thoreau put it in *Walden*: "The stalk of the lotus may be broken, but the fibers remain connected". Emerson had an essential role 'in developing the spiritual life and literary career of Thoreau' (ibid., p.176). Thoreau 'produced the most elevated creative works of all the American transcendentalists, even surpassing his mentor Emerson' (ibid, p.179).

This chapter will focus on one specific form of negative support: negative stereotypes interacting with social support to the novelty generation process. Stereotypes have been said to function as 'instruments of social conflict' (Haslam, Oakes, McGarty et al., 1996, p.218). Here it is about the conflict of support unequally distributed to novelty-seekers belonging to different social

groups. First, an overview of a range of stereotypes will be discussed that affect the different components of the novelty generation process. Secondly, three stereotypes will be discussed in more detail, also as related to receiving grants and awards (following the discussion in chapter three). The chapter is rounded off with a number of hypotheses.

4.2 INTERACTIONS OF STEREOTYPES WITH SUPPORT TO NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE

Being stereotyped “limits [people’s] freedom and constrains their outcomes, even their lives” (Fiske, 1993, p.621). And they do so for those who are stereotyped, but also for those who have to judge the stereotyped on their performance. People in positions of power (like those involved in the distribution of support) potentially rely on stereotypes to assess the behavior of those with less power. Particular stereotypes may be conducive or counteractive to novelty-seeking, creativity and innovative performance. Stereotypes create and maintain particular categorical beliefs, which may for instance determine how much support providers are willing to give to an individual, and also how much support this individual expects. The social judgment process of those in power can be distorted by stereotypes in a way that the judges may for instance perceive a novel stimulus in a product presented by a negatively stereotyped person, but if it is not socially desirable to publicly acknowledge this novelty, refrain from passing a novelty judgment and therefore withhold innovative performance from the stereotyped actor. In the case of a positively stereotyped individual (for instance a person belonging to a highly original group), even if a social judge would not really perceive a novel stimulus in the product presented by this person, her or she may nevertheless experience the social desirability of passing a novelty judgement in this case and in the benefit of the doubt be more inclined to publicly acknowledge an aspect of novelty in that product.

A number of stereotypes affect the novelty-seeking professions, either on the side of the producers and/or that of the social judges. Scientists and artists, for instance, are often stereotyped as socially inapt, highly complicated misanthropes as well as operationally inapt in the sense of impractical and unhandy ‘brain workers’. These stereotypes may work as self-fulfilling prophecies that interfere with the motivation of the stereotyped to grow beyond the classifications of the stereotype. This also creates a certain margin in which the stereotyped may even exploit their stereotype in the novelty-seeking professions, for instance by using

it as an implicit excuse for investing less time in communal, operational and social domains and using saved energies for what they assign the highest priority to: seeking novelties. Given these stereotypes, a socially agreeable and gifted artist may loose out in the social judgment process, because s/he does not meet the stereotype and is therefore less likely to be categorized as a novelty-seeking individual. Similarly, those with bright-eyed, healthy and happy faces could be turned down in social judgment processes for not being innovative. Is this a 'brilliant artist' or a 'real scientist', a 'genius'? – the social judges primed by the stereotype in their social judgment may ask themselves. Thanks to stereotypes, features that are considered socially undesirable among the general population, may even become desirable when displayed by a novelty-seeking professional. Uncivilized behavior is excused under the heading of 'artist' or 'scientist'. A collective abolishment of such stereotypes may be argued to force artists and scientists to behave better socially and give them more motivations to perform better on operational tasks.

Furthermore, neuro-biological relationships between dopamine and novelty-seeking behavior (see chapter two) seem to elicit their own specific forms of social psychological support: a number of stereotypes concerning the life-style of artists have developed, including heavy smoking, drinking, other drug abuse and promiscuous sexual activity - the habitus of the artist as Bourdieu describes it from a sociological point of view (Bourdieu, 1979). Drugs like cigarettes and alcohol have become elements of the artist's conspicuous consumption fitting the habitus of how an artist's stereotype has been constructed in the 20th century- a drug abusive, health-defying, morbid lifestyle, whereas healthy living is despised as something intolerably bourgeois. 20th Century artists like Andy Warhol fully fit the picture of the artist as heavy drug users. Jean-Michel Bastiat whom he worked with even died of an overdose. Innumerable books have been written on the drug ruin of artists, in fact on the novelty-seeker's tendency to seek out the borders of not only their art or science, but also their own human existence.

Another stereotype in the arts is that of the poor artist (Abbing, 2002). Indeed a stereotype, since looking at art history as a whole, we find that most of the famous artists and writers came from well-to-do families and exploited other material and societal possibilities than the 'poor'. Of course most of these artists also got the label 'poor', since in their own social environment they usually were the ones with the lowest incomes compared to other family members. It is not that being poor fosters more novelty-seeking behavior, it merely is the other way around: humans decide for creative activity, which usually does not leave them time to earn a regular income. Becoming an artist is in fact a conscious decision

to accept a lower standard living, unless the artist lives in a socially supportive climate: a supportive institution, be it family or firm or a socially supportive impersonal system in which subsidies can be obtained for one's work.

This chapter focuses on three even more salient stereotypes specific to the novelty-seeking professions: the gender and the maturity stereotype on the individual level and the size-stereotype on the organizational level. Concerning the gender stereotype, a range of biological research has shown that the scores with respect to novelty-seeking temperament do not differ between women and men. This suggests that the gender differences in novelty-seeking behavior and also creativity are mostly socially constructed and maintained in the course of history. As a result, a stereotype of this gender-novelty-seeking link has developed which differently influences the likelihood of male and female novelty-seekers to receive social support for their novelty-seeking activities. Also it is stereotypical to assume that mature individuals would have less novel ideas. Also, stereotypes on the organizational level can affect the levels of innovative performance that affiliates of this organization can reach. Large size has come to be a negative stereotype in the context of innovative performance. Large size is associated with financial resources, finesse in marketing, and sound economical reasoning that is all subtracting from a reputation for producing radically novel products. In contrast there is the reputation of the small firm that has to seek the new and the different as a chance to compete by distinguishing itself from the big players.

By which forms of support can the effects of negative stereotypes be balanced? Or are negative stereotypes in themselves already a strong generator of energies? How do stereotypes work in the context of grants and awards? Would it be that those who do repeatedly not qualify within awards and grants systems at some point experience particular freedom to design their work in completely different ways? Such a situation could function as a motivator for increased novelty-seeking activities.

4.3 INDIVIDUAL-LEVEL STEREOTYPES INTERACTING WITH SUPPORT TO THE NOVELTY-SEEKER

4.3.1 THE GENDER STEREOTYPE IN THE NOVELTY-SEEKING PROFESSIONS

Woman may be said to be an inferior man

Aristotle

The brain is an organ of minor importance.

Aristotle

Aristotle (...) pretends that women are but monsters. Who would not believe it, upon the authority of so renowned a person?

Francois Poullain de la Barre, 1673

The gender stereotype is at least as old as the novelty-seeking professions themselves, while a whole array of biological research findings indicates that the novelty-seeking scores of women and men do not differ significantly. However, women score significantly higher on the dimensions of *harm avoidance* and *reward dependence* (Nixon & Parsons, 1990). These results have been confirmed on the TPQ novelty-seeking subscale (Macharia, Leon, Rowe, Stephenson, & Haynes, 1992), (Keltikangas-Järvinen, Elovainio, Kivimäki et al., 2003). In a twin study, equal heritability of the stimulation-seeking trait was found in both males and females (Koopmans, Boomsma, Heath, van Doornen, & Lorenz, 1995). Also, some researchers have found that there is no gender difference in the openness to experience dimension (Costa Jr. & McCrae, 1992); others found that women scored much higher on the openness to fantasy sub-scale of the 'openness to experience' dimension of personality and were according to their research results statistically more susceptible to suffering from depression (Carrillo, Rojo, Sanchez-Bernados, & Avia, 2001), one of the mood disorders typical of professionals in the novelty-seeking professions (see chapter two). Furthermore, no gender differences have been found in the need for cognition (NC) (Cacioppo, Petty, Feinstein, Blair, & Jarvis, 1996).

Factual differences found in creativity and innovative performance records of men and women may be attributable to social-psychological mediators. According to the social role theory of gender, men and women actually behave differently as a result of the different expectations society has on them in their different social roles (Eagly, 1987; Eagly, Wood, & Diekmann, 2000). Differences in the traditional domestic role assigned to women emphasize being supportive to others instead of being supported by others. In addition, according to the stereotype-threat theory, stereotypes influence an individual's intellectual identity and performance (Steele & Aronson, 1995). After this seminal work, findings have been replicated in various contexts- in a performance situation negatively stereotyped women performed far more poorly in math tests, afraid to confirm the stereotype (Spencer, Steele, & Quinn, 1999). In achievement situations women as a negatively stereotyped groups dramatically underperform in the domain of stereotype content, for instance problem-solving (Inzlicht & Ben-Zeev, 2000).

Led to believe for centuries that their performance is lower on intellectually creative tasks women are still likely to experience performance decrements, even in Western cultures. It can be argued that while the stereotyping has socially become sanctioned, the self-stereotyping process is not yet eliminated. As has been argued, negative stereotypes induce a focus on prevention in performance situations, which leads to 'risk-averse, analytic, and perseverant processing style whereas a promotion focus leads to an explorative and more creative processing style (Friedman & Förster, 2001; Seibt & Förster, 2004). Women, negatively stereotyped in the novelty-seeking professions will according to this theory find it harder to be creative.

The issue of gender as a biological property within a social psychological complex of innovation has hardly been thematized with respect to novelty-seeking and innovation. Research on creativity has traditionally been limited to male subjects (Post, 1994). Exceptions were: comparisons of creativity in children were girls scored higher than boys consistently across all the subscales of the Torrance tests of creative thinking (Kershner & Ledger, 1985) or work in which men produced more creative solutions when working on their own and women were more creative in solutions to problems addressed in a group discussion (Wood, Polek, & Aiken, 1985). In more recent social psychological research the gender variable is mostly included, but often little attention is paid to it. Articles on the relationship between creativity and gender are hard to find in top-rank social psychological journals. A social psychology of gender and innovation has to investigate questions such as whether and why female novelty-seekers are a minority in the novelty-seeking professions, and which effect such

a minority position has on the members of that minority. Kate Millet's 'Sexual Politics' (Millet, 1969) discusses the position of women as members of a minority group, despite being a numerical majority in fact. The gender stereotype in the novelty-seeking professions is closely related to some more general stereotypes concerning characteristics of men and women, e.g. that men are better in the exact science than women, or that men are taller than women (Biernat, Manis, & Nelson, 1991), or that it is desirable for men to be tall and for women to be small (Roberts & Herman, 1986). After all, physical appearance has always been a basis of stereotyping (Zebrowitz, 1996). Female attractiveness has often been argued to facilitate persuasion processes (DeBono & Harnish, 1988), which has come with the side effect of attributing female innovative performance to attractiveness rather than the quality of the novelties itself. For men, attractiveness has been more likely to support the social recognition they received for their novelty-seeking performance.

While men have traditionally been socially recognized professional novelty-seekers, women have traditionally been assigned the social role of support providers for male professional novelty-seeking activities. Women's career throughout history started as a promotion from 'animal' to 'human', via amongst others a placement in the same ranks as slaves evolving into the socially recognized domestic ideal. Nancy Chodorow argued that the acceptance of the domestic ideal forms the basis for the oppression of women (Chodorow, 1978). In the past, women could earn social recognition only for performance in the domestic realm. This was then also the field in which women could lose their face if not performing well. Due to the acceptance of the domestic ideal, women usually did not find the time and opportunity to satisfy above-average cognitive needs. As a result, they were doomed to be assessed as 'dysfunctional', when they did not satisfy the requirements of society with respect to their female role. Women who did not fit in with the societal expectations were confronted with negative social judgment and stigmata. This eliminated any motivation women may have had to engage in cognitive novelty-seeking activities.

At present, researchers provide empirical evidence that women still provide more social support to others than males do (Whetington, McLeod, & Kessler, 1987). Also, a number of studies suggest that the gender of the support provider and support recipient influences the effects of receiving interpersonal social support, where incongruence between the gender of both parties has been found to often lead to negative reactions (Edens, Larkin, & Abel, 1992; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). By 'cutting off' women's possibilities of satisfying their own needs and of receiving social recognition, the male population secured

ultimate female support and attention for the satisfaction of their own needs. In some cultures this cruel trick still takes place. Also the Arts and the Sciences in highly civilized Western countries are still male-dominated subjecting women to psychological minority processes. There may still be a significant difference between women and men having identical novelty-seeking scores on the one hand and men having significantly higher social recognition on the other hand. This may become visible in a significantly higher innovative performance of the male population as compared to the female population of novelty-seekers. And even if a society formally decides to abolish a stereotype and starts to provide women with equal social support as men, women still have to erase the effect of these stereotypes on their self-support. According to this stereotype content it can be expected that women are less likely to receive support in the novelty-seeking professions such as awards and grants, but also that they are less likely to apply for it, due to their less favorable intellectual identity.

All the arts have been invented by man,
not by woman.

Voltaire, 1764

For the different stages of the Novelty-Generation Model (novelty-seeking, creativity and innovative performance) social role theory (e.g. Eagly, 1987) has various implications. The male role of being assertive and to achieve social status especially supports the last component towards innovative performance in the model (Figure 2.1 in chapter two): persuading the social environment to judge and recognize the product one presents in fact as novel. The female emancipation process can actually be seen as having proceeded from one component of the Novelty Generation Model to the next, starting with fighting for the rights to seek novelties, fighting for the space for creating and only in the very last phase of emancipation also the social recognition of the innovative performance component would be granted. The social psychological obstacles experienced by female artists in the course of history have also been explained and elaborated in the sociology of art (Greer, 1979; Hess & Baker, 1973). It also reports unique examples of women who freed themselves from their female social roles and performed novelty-seeking and creative behaviors. If they, however, decided to dare and compete with their male colleagues, extraordinarily gifted women still had to remain formally in low assistant positions in the highly novelty-seeking professions such as science or art (Bertsch McGrayne, 1993; Schiebinger, 1989). Most women were tolerated on quasi-recognized working positions, for instance in university laboratories. If women sought and found something novel, then

they were impeded in the transformation of their novel findings into innovative performance for themselves. They did not get the social recognition for it, which also meant that they did not get their rightful share in the validation support coming with awards. Examples abound: one is Lise Meitner, the German nuclear physicist whose 'life-long scientific accomplishments were crowned by the Nobel Prize for Otto Hahn' in 1946 (Bertsch McGrayne, 1993, p.60); another one is Rosalind Franklin who had a key role in the discovery of the double-helical structure of DNA. When Watson, Crick and Wilkins won the Nobel Prize for it shortly after her death, however, the Nobel lecture of her colleagues did not even contain one reference to her work.

Apart from all the women who did not get their rightful share in the honors this world grants, Marie Curie forms an exception. She won the Nobel Prize in Physics in 1903 and the Nobel Prize in Chemistry in 1911. How was this possible? In addition to her genius, Marie Curie was a very privileged woman in her time in the sense that she was supported by a socially recognized male colleague who was also her partner in private life and who made sure that the woman he loved and the scientist he respected got all the public credit she deserved before and even after his death in 1906. This is an exceptional case. In general women throughout the centuries and across various domains have found and produced novelties, but have not passed the social barriers to transform them into recognized innovations on their name. Interestingly, these examples show a clear distribution of validation and instrumental support: the negatively stereotyped group has received the same amounts of instrumental support to function under the control of the male group of researchers, while afterwards the validation support is reaped by the positively stereotyped group.

Another reason why stereotyped individuals can be argued to receive equal instrumental support but less validation support, is that instrumental support is more tangible and measurable than validation support- with the consequence that, to be politically correct support providers feel more obliged to give the same amounts of support in those forms of support which are tangible and measurable. The stereotyped can point to a tangible difference and claim rights- so significant differences in tangible support measures are likely to be uncovered at some point and negotiated. However, validation support is not tangible, it cannot be pointed to and claimed in the same way as instrumental support. So the support is more likely to be withheld in the intangible forms of support like social recognition and fame. Experimental social psychological researchers found that women have usually been judged as less famous than men in comparable situations (Banaji & Greenwald, 1995). Women working with famous scientists and artists were at

most granted the status of:

'pale copies, imitators with little originality of their own, as in cases of Jackson Pollock and Lee Krasner, Yves Tanguy and Kay Sage, Max Ernst and Leonora Carrington, and it is up to her to decide whether she will survive by accepting that role, or dispute it and risk ostracism. Whereas he transcends his sources, goes the stereotype, she remains limited and defined by hers' (Chadwick & De Courtivron, 1993, p.10).

The social judgment machinery worked on the assumption that man influences woman in such relationships and not vice versa. Man is genius. Woman is muse, at most. Given the male bias in Western recorded history, women who in fact managed to be novelty-seekers, novelty-finder and producers in their time where simply not recorded at all as innovators throughout history (Alic, 1986).

In 1971, there were 35 times more women than men in English mental hospitals, whereas the ratio was reversed in English prisons.

(Asimov, 1997)

All the psychological consequences from the frustration of novelty-seeking needs, the expression of which are of course also dependent on other personality traits have to be suffered by woman and also her domestic environment. In the course of history, the ignorance of novelty-seeking needs may have resulted in increased psychological problems and a dramatically reduced sense of well-being. Women in Western society as well as most other parts in the world were diagnosed with depression and anxiety, at least twice as often as men (Gold, 1998; Maier, Gaensicke, Gater et al., 1999). The experience of discrimination, for instance when having to accept menial jobs and situations of dependency have been related to low serotonin levels and depression (Wu & DeMaris, 1996). In vervet monkeys the dominant males have been found to have serotonin levels up to twice as high compared to those of their subordinates (Raleigh & et.al., 1991). The works of female artists like Berlinde de Bruykere and Marlene Dumas intensely express the psychological strains women have suffered. Whereas depression experienced by men could be channeled in a socially desirable manner into inspiration for novelty-seeking and productive activity, women have been more likely to be left with this depression in a vicious circle of low motivation. Stereotypes have been suggested to contribute to gender differences

in the expression of emotions such as sadness. Relative levels of power and status associated with male and female roles (Fischer, 1993) may best explain that women have expressed depressed feelings to a higher degree than men in the course of history. Given the deprivation conditions imposed on women by society and the stereotype which maintained this condition in the course of history it is not surprising that depression and hysterical deviations have been diagnosed as 'typically female'. These low and high mood cycles often diagnosed in women in turn make them less reliable in leading societal positions which often come with high responsibilities and may require constant and reliable behavior. Apart from the motivational barriers, the barriers turn out also to be purely operational: Having to do justice to a social role which is supportive to others, leaves far less time for own novelty-seeking, finding and productive activities. Therefore the productivity records of women are far lower than that of men, which in turn assigns them an inferior position in social comparison processes.

It has been argued that societies partly have invented the concept of mental illness to legitimate control and if necessary change people with socially undesirable patterns of behavior which they may find threatening to the order of their time (Szasz, 1961). It was indeed very useful for a male dominated society to consider manifestations of female novelty-seeking as well as the dissatisfaction of frustrated novelty-seeking needs as mad deviation (Foucault, 1965). Both religion and psychotherapy served as means of coercion (Szasz, 1987). Eminent female creatives were found to be more likely to be diagnosed with mental illness and receive treatment for it than eminent male creatives (Ludwig, 1992, 1994). Women in many novelty-seeking professions still have to handle the psychological set up of being a minority member, in addition to the hormonal changes which make women more likely to suffer from depression (Pajer, 1995). Depression in turn leads to low motivation patterns again.

Which tools does society have to balance negative stereotypes? In the case of the gender stereotype a process is going on of recovering the innovative performance of women retrospectively, in fact, a process of researching and re-writing history in the arts and the sciences (Gornick, 1983; Kass-Simon, 1990; Rothschild, 1982). Secondly, institutions have created social judgment devices with the aim of balancing the distortions in the social comparison process around novelty-seeking, creativity and innovative performance. For instance, awards have been invented which were directed to women only. An example in Germany is the "Roswitha-Literaturpreis" conferred to German female poets and novelists in memory of the first historically recorded female medieval German poet "Roswitha von Gandersheim".

Adequate support neither forces women to equalize themselves with men, nor does it ignore the differences between men and women. This argument may risk arousing old style feminist anger about not being treated as equals. Their concern with equality has been necessary to get women out of the oppressed status in the first place and get the process of emancipation off the ground. However, this striving for equality is a transitory phase, which in fact still hurts and disrespects womanhood, just in another way. The next stage is to make biological inequalities respectable within social judgment situations. It is only then that we can begin to speak of genuine social support for female novelty-seeking, creativity and innovative performance: not to be respected because of being *like* men, but to be respected for being *different* instead. Negotiating full respect for womanhood in all its particularities and 'if you like, 'inequalities' affects novelty-seeking potential, beyond the forceful equalizing of biologically different facts, also the very facts which may deploy the fullest female potential for the novelty generation process.

Interestingly, recent research did not show differences anymore between male and female preferences in partner choice on the supportive characteristic (nurturance factor) (Doosje, Rojahn, & Fischer, 1999). So the supportive role assigned to women may have become reduced in the course of emancipation, at least when individuals are asked to formally state their preference. Still, behind what is formally stated, the process is far from finished. Millennia of priming effects are highly unlikely to be eradicated within one or two centuries. Disruptive mood swings with depressed cycles of low motivation which block female entry into higher positions may be firmly anchored in the neural networks of a phylogenetic development. Mothers may still unconsciously pass on constraints to their daughters. These effects may surely be reduced from generation to generation, but the collective psyche of women and men can be expected to lag behind of what is now officially considered as politically correct in the Western world. How long did it take to build up these differences of neural circuits in the human race? How long does it take to break them down?

In the Western world it is considered correct to give equal support such as grants and stimulation awards to men and women, just as women who performed comparably to men are honored to the same degree. But do women surmount their unconscious barriers fully to take their right for support? Do they participate in the circuits of grants and awards just as men do? Do they apply in the same frequency as men do? Are they honored in the same frequency as men? Do women achieve the same innovative performance as their male colleagues after receiving grants and awards? Do organizations support women on their way to

innovative performance to the same degree as they do in the case of their male colleagues? Looking at the above arguments the intuitive answer to all these questions would still be 'no'. Hardly any empirical evidence has as yet been produced to answer these questions. On the basis of what has been discussed in this chapter, one thing can be expected: That the disadvantaged group of novelty-seekers, in that case the women, are likely to make a greater effort than men in trying to receive support. If that is so, awards which run via nomination can be argued to be less reachable for them than awards or grants, which run via application, a selection procedure which allows for the support receivers' own initiative. On the other hand, it has been found earlier that women tend to utilize instrumental forms of support less, while the reverse was the case with emotional support (Day & Livingstone, 2003; Olson & Shultz, 1994). Grants have been discussed above as a form of instrumental support. On this basis it may also be hypothesized that women are less likely to reap the full potential out of having received a grant than men. For instance their increase in innovative performance after having received a grant may be lower than that of men.

4.3.2 THE MATURITY STEREOTYPE IN THE NOVELTY-SEEKING PROFESSIONS

Young and innovative versus Mature and supportive- this is the implicit assumption on which careers tend to be seen in the Western society: The older are expected to support the younger with their own experience. Comparable to the gender stereotype this maturity stereotype creates a social role that may lead to social sanctions, if it is not fulfilled.

It has been demonstrated that subliminally activated stereotypes can alter the individual's judgments about themselves and in this way also the cognitive performance of older individuals (Levy, 1996). Here it was found that activating the senility schema as opposed to the wisdom schema mediates the performance of these individuals on memory tasks. The maturity stereotype dominating our Western cultures may thus work in two ways: it may make older individuals believe that their most creative times are over which leads to decreased creative performance, and on the other hand this stereotype may also influence the juries determining the innovative performance of these individuals to pass less favourable judgments.

However, novelty-seekers like Matisse landed their greatest inventions at an older age and many writers performed their most original works at a mature age. The capacity for creativity and play as well as having a curious and open

mind have been recognized as important issues also for human beings in their 70s and 80s (Vaillant, 2002). The cumulative-advantage-hypothesis in fact states that training and experience, social relatedness and knowledge of a field which comes with age are likely to increase the recognition of novel ideas and also the productivity of the novelty-seeking individual (Cole, 1979). In fact, the whole habitus of the artist seems to be a way in which mature novelty-seekers fight against the maturity stereotype: A hypothesis of the sociologist Bourdieu is that accepting social symbols is connected to a more mature stage, which also gives access to positions of social power. This also implies an end to the youthful lack of responsibility. So he argues that artists and other professionals in free professions present themselves in a more youthful *habitus* than other professionals of the same age. Individuals who do not conform with the mainstream are then argued to have a different ‘social age’, younger than individuals in other professions (Bourdieu, 1992, p.191).

In our society, being older and/or more mature makes a social judgment as ‘innovative’ less likely as briefly discussed in the previous chapter in the context of honorary awards. Society has laid down some implicit rules on who should receive support and who should provide it, and established social sanctions for those who do not behave according to these rules. Being young and at the start of a career legitimizes for receiving support to novelty-seeking activities, whereas higher maturity is more likely to justify for being honored. Society expects from the mature to provide support to younger novelty-seekers. According to the social psychological mechanisms embodied in the social judgment mechanisms they may therefore be less likely to elicit the social judgment of having generated something novel. However, the novelty-seeker with high professional maturity may falsely be expected to be less novelty-seeking and novelty-finding.

In this way, aging may come with reduced creativity as a self-fulfilling prophecy: Considerations on age and creativity confirm this thought (see for instance Lehman, 1960; Mumford & Gustafson, 1988). The baseline of these findings is that the young and the middle-aged contribute the most innovative products to a field while later career brings minor, but maybe more frequent contributions. Middle aged people to take more pragmatic decisions with respect to research or art projects than younger people who do think less in career planning perspectives. Less risk taking behavior in middle-age (Lowenthal, Thurnher, Chiriboga et al., 1976) seems to form another foundation for this assumption: the more mature, the less creative. Also, the personality dimension of neuroticism within the Five-Factor-Model, has been shown to decrease with age, whereas the scores on the agreeableness and the conscientiousness dimensions increase

(Neyer, 2000). Creatives score high on the neuroticism dimension- another argument to expect the mature to be creative.

Furthermore, researchers have found that sensation seeking diminishes during the time period from adolescence to middle age in all cultures (Costa & McCrae, 1980, p.80). Animal research reveals a decline in exploratory behavior with age that is genetically mediated (Lhotellier, Perez-Diaz, & Cohen-Salmon, 1993) and a study on psychology and aging in humans found a similar relationship between aging and curiosity (Giambra, Camp, & Grodsky, 1992). Also it was found that age correlated negatively with novelty-seeking (Ball, Tennen, & Kranzler, 1999). Here it is again helpful to have distinguished the components of novelty-seeking, creativity and innovative performance in the *Novelty Generation Model (NGM)* in chapter two. It may well be that the novelty-seeking behavior of more mature individuals takes place in a lower intensity than in younger age. However, the Novelty Generation Model assumes that there are variations in the intensity in which different components contribute to the novelty generation process, possibly also for different age groups. Whereas for younger individuals novelty-seeking behavior may be a more significant precursor of novelty-finding and production, more mature individuals may reap from other cognitive resources such as memories. Overall, cognitive decline in highly novelty-seeking individuals can be argued to be smaller than in lower novelty-seeking individuals.

While creativity may be stronger at a younger age, the social recognition for it may come with a time lag and that is needed for innovative performance. More mature novelty-seekers more likely have the contacts and networks to get the recognition of their works. Mature individuals win honorary awards, a clear expression of social recognition as explained in the previous chapter. But social recognition such as honor refers back to past performance- just as Eliot said it: the Nobel Prize is the ticket to your own funeral.

If we now go back to Cloninger's approach to creativity as a natural by-product of the individuals ability to reach high levels of self-aware consciousness in a process of striving towards or maintaining well-being (Cloninger, 2004), the above arguments seem to fall into their place. It has been found that this ability to reach high levels of self-aware consciousness as a source of contemplative thought (a prerequisite for creativity) increases with maturity. The more mature individual is often also able to provide advice to the young and immature individual on how to reach the well-being resulting from these abilities, rather than the other way round (Cloninger, 2004, p.348). At the same time these abilities remain an ideal basis for creative behavior.

Therefore we see the maturity stereotype at work when more mature

individuals are categorically judged as less creative. In the same sense it can be argued that due to the maturity stereotype, honorary awards will not support an increase in innovative performance for the more mature individuals, but if less mature individuals win an honorary award this is more likely to predict an increase in innovative performance.

4.4 ORGANIZATIONAL LEVEL STEREOTYPES INTERFERING WITH INNOVATIVE PERFORMANCE IN THE NOVELTY-SEEKING PROFESSIONS

4.1.1 THE INNOVATIVE PERFORMANCE OF AN ORGANIZATION AND ITS AFFILIATES

Novelty-seeking as a core activity requires a particular organizational setting, which distinguishes itself from the usual firm-employee relationships by its looser ties between affiliate and organization. This applies to research institutes, publishing houses, galleries and the like. Their characteristics will be discussed in more detail in chapter six. Among the different forms of support an organization can provide to its novelty-seeking affiliates is its status with respect to innovative performance.

From the perspective of the novelty-seeker, being able to become part of a reputable institution and being able to convince and secure this institution's support for one's own objectives reflects the individual's ability to deal with institutional politics which naturally forms part of any environment in which novelty-seeking, creativity and innovation take place. Such a capability to affiliate to an organization is part of the novelty-seeking professional's self-realization process, which includes taking part in and contributing to a society. One may seek and find novelties in isolation and as an outsider of society - but only at the point in time when a social environment (including organizations of affiliation) acknowledges and supports these findings can innovative performance develop (definitions chapter two). However, organizational affiliations can also have negative effects: an individual supported by a negatively stereotyped organization may experience interactions with support flows from other sources - for instance may receive less impersonal support such as grants and awards.

High status has been rated as the most important intangible resource an organization can have (Fombrun, 1996; Hall, 1993). The status of an organization with respect to innovative performance reflects the aggregate outcome of social

judgment processes concerning the organization's previous affiliates or products. An organization is only as good as the individuals affiliated to it, so the innovative performance of the organization and the innovative performance of its novelty-seeking affiliates strongly influence each other. High-status organizations thus carefully choose their affiliates. They do not want to risk the economic and social rents from their high status (Podolny, 1993). Individuals are selected for affiliation to an organization if they are expected to fit into the organization's profile and have standards with respect to novelty-seeking and potential innovative performance comparable to that of other affiliates. If they turn out not to fit the profile on the long run, contracts are less likely to be prolonged and novelty-seekers may seek a new affiliation. In sum, an organization with a reputation for having highly novelty-seeking individuals among their affiliates is likely to support a more beneficial judgment concerning the affiliate's novelty-seeking outcomes presented in the environment of social comparison in which the organization operates than an organization with a less favorable reputation.

In sum, the support mechanisms work in several ways. First of all, the degree of impersonal support (e.g. grants and awards) that novelty-seekers have received from other sources may influence organizational decision-makers to select these novelty-seekers as their affiliates. Secondly, the decisions of support providers such as award juries may in turn be influenced by the status of the organizational affiliation which a potential support receiver has. Thirdly, organizations also get a return from this support circle - from the validation support that is created in award processes, for instance increased sales after affiliates have received honorary awards. The innovative performance of the individual and the innovative performance of the organization are thus simultaneous support streams.

Impersonal support in the form of status may thus be transferred between the different levels of organization and affiliated individual but also between one organization and another one perceived as belonging to the same group of organizations. For instance, an organization may be perceived as belonging to a group of mass-producing organizations. Mass-producing organizations do not have a reputation for producing novel products (Schweizer, 2001, 2003). In other words their reputation for innovative performance is low. This stereotype on the organizational level related to the size of the company will be discussed in more depth in the following section.

4.1.2 ORGANIZATIONAL STEREOTYPE: IS IT TRUE THAT NOVELTIES RARELY COME FROM LARGE AND FINANCIALLY POWERFUL ORGANIZATIONS?

The status of an organization does not constitute a monolithic resource. It varies for different domains of the organization's operations. An organization may have an excellent status in the domain of producing novel contents, but a poor status with respect to the technological, financial or marketing support it provides to its affiliates. Mass production, large size of the organization and related financial power go in a similar direction as the maturity and wealth stereotypes on the individual level. Especially in the arts, a high status with respect to financial power and size has not proved conducive to its status with respect to innovative performance (Schweizer, 2001).

In a number of novelty-seeking professions, the seeking of new stylistic solutions in the content or the form of a product is the core domain, see for instance the arts. Surprisingly, a definition of stylistic innovation is hard to find in the innovation literature (Schweizer, 2003). Such a definition can easily be derived from the innovation definition presented in the second chapter. Embedding the style construct in the social psychological literature, style can be considered as a means of creating contrast, a means of distinguishing oneself socially in the novelty-seeking professions (Bourdieu, 1979, 1992). Style is a tool for intentionally, but also unintentionally communicating one's identity within a social environment. Stylistic innovative performance is assigned on the basis of differences perceived against the background of a set of accepted stylistic norms, which create particular expectations within a specific social judgment environment. It requires a certain expertise to be aware of the range of stylistic variations produced in the course of history and to establish the link to the choices which a producer presents (Luhmann, 1984). Even a significant stylistic novelty is very unlikely to be recognized, let alone take its place in a historical canon, if the novelty of the style is not perceived and announced as a factual novelty by social judges.

Based on an earlier definition of stylistic innovation (Schweizer, 2003) as well as the innovation definition suggested in chapter two the following definition has been arrived at:

Stylistic innovation is

the outcome of an interaction between individual and social factors including on the one hand an individual's behavior fed by specific personality traits and achievement needs and on the other hand the either intrinsically or extrinsically motivated social judgment

behavior of expert others who publicly acknowledge novel means and/or ends in the creative process of this individual within a defined range of comparison, either because they experience these means and ends as novel stimuli, and/or because they experience it as socially desirable to pass this novelty judgment about them.

It seems that in sectors where stylistic innovation is more important, the organizational size and financial power stereotype is comparatively predominant. Traditionally, individuals and the organizations they are affiliated to are not meant to make much money in these industries, be it the high-brow arts, haute-couture etc. They have traditionally absorbed financial resources rather than generated them, which has become a distinctive feature linked with its innovative performance quality. This code has originated in times when novelty-seeking professions like the arts and sciences were conducted by a few nobles and amateurs (Alic, 1986). In the novelty-seeking professions the statement 'not just for the money' is of highest significance: here non-monetary income such as the pleasure of satisfying higher needs has a higher share in work satisfaction than in other professions (Frey, 1997). Art and science belong to the archetypical novelty-seeking professions in which work has a very high satisfying quality for those who pursue it out of intrinsic motivation. As it has been said very aptly: artists consume their hobby, which means that they have to pay for it (Abbing, 2002). Such a mindset threatens to keep actors in these industries from becoming financially self-supportive. The result has been a commercial stigma interfering with the innovation process. The perceptual link between pure, intrinsic novelty-seeking and economic innocence has pushed artists and scientists into a code of honor which contains the abstinence from money-making.

Organizational consolidation and concentration through mergers and acquisitions have been discussed for decades as unfavourable to original production and innovativeness, for instance in the book publishing industry (see for example Kobrak & Luey, 1992; Schiffrin, 1998; Whiteside, 1981). It has been argued that either the novelty-seeking and risk-taking behavior of smaller literary publishers gets lost in the acquisition wave through large corporations, or that the small publisher as a whole ceases to exist in the competition with the giants. In some industries, domain-specificity of novelty-seeking *in the content domain only* is an honorary code, contrasting the logic of the market domain versus the artistic domain (Bourdieu, 1992). 'Really credible innovative art must not and cannot have commercial success' - this is the stereotype related to this honorary code. As soon as novelty-seeking moves into the area of commerce, money can become a strong external motivator and suppressive

effects to intrinsic motivation seem to be assumed by those who pass social judgment about the products. This reasoning feeds the stereotype that large company size and commercial success is unlikely to be paired with discovering novelties and producing them. In non-artistic domains R&D expenditures may be concentrated with the largest companies, but also here bureaucratization and commercialization of the innovation process may have negative consequences: in the social judgment process an emphasis on commercial aspects threatens to impede the social recognition of a company's products as novel.

Organizational Concentration goes hand in hand with the use of modern mass production technology, which is perceived as strongly working against the modernist ideals of avant-garde literature by most publishers. In the terminology of Benjamin, mass-reproduction leads to a loss of the 'aura' of cultural products, the authentic work of art (Benjamin, 1966). This argument also relates to the philosophical arguments of the critical theorists (Adorno & Horkheimer, 1969), who see media conglomerates as a power elite having monopolist control over cultural production and capital. High quality cultural content has been supposed to be free from practical necessities: 'Economic innocence has been thoroughly built up in theory and is threatened by technology' (Leschke, 2000).

However, also on the organizational level, ways of support have been found which balance the effects of such negative stereotypes: there are organizations that manage to combine high status with respect to artistic novelty-seeking with mass performance without damaging their artistic status. First, organizations may decide to downplay their mass performance in their public image in order to maintain their innovative reputation in the field. Or they may found smaller organizational units which are not associated by the social judgment machinery as belonging to the mass market mother company. A similar practice can be found in the publishing industry where large firms work with imprints. Also, organizations may decide to explicitly defy, ridicule and play with stereotypes, in the way artists like Jeff Koons did. Such examples show that novelty-seeking behavior around negative stereotypes may also be a good recipe for achieving innovative performance.

For those large organizations, which do not use these strategies, the size stereotype is likely to have its effect. This may also affect the individuals affiliated to these organizations. In sum, an organization with a reputation for having highly novelty-seeking individuals among their affiliates is likely to support a more beneficial judgment concerning the affiliate's novelty-seeking outcomes presented in the environment of social comparison in which the organization operates than an organization with a less favorable reputation. An organization

with a reputation for mass production is less likely to support a beneficial judgment concerning the affiliate's novelty-seeking outcomes presented in the environment of social comparison in which the organization operates than an organization with a more favorable reputation. This may also interfere with the support these affiliates may obtain from impersonal sources. Such affiliates may for instance be less likely to receive support from impersonal sources, such as grants and stimulation awards.

4.5 EFFECTS OF STEREOTYPES ON SUPPORT TO NOVELTY-SEEKING, CREATIVITY AND INNOVATIVE PERFORMANCE: SOME HYPOTHESES

Having made the distinction between novelty-seeking, creativity and innovative performance in the second chapter serves here to clearly distinguish the effects of negative stereotypes in these different processes: From what has been discussed in this chapter it can be concluded that stereotypes can indeed work as a form of negative support to the processes of novelty-seeking and creativity in stereotyped individuals. In contrast, stereotypes are not supportive in the process of achieving innovative performance. It seems to be in particular the validation support rather than the instrumental forms of support contained in the attribution of innovative performance which seem to be mediated by stereotypes influencing the judges involved in the innovation process. Also, it became clear that it was fully justified to make a case for an integrated biopsychosocial model of the novelty generation model. The detailed descriptions of the gender and the maturity stereotype clearly illustrated the pervasive nature of social support effects (in this case negative ones) in the individual's ability to reach or maintain a sense of well-being (for instance in aging, or simply in being a women) and these individuals' likelihood to perform creative behaviors.

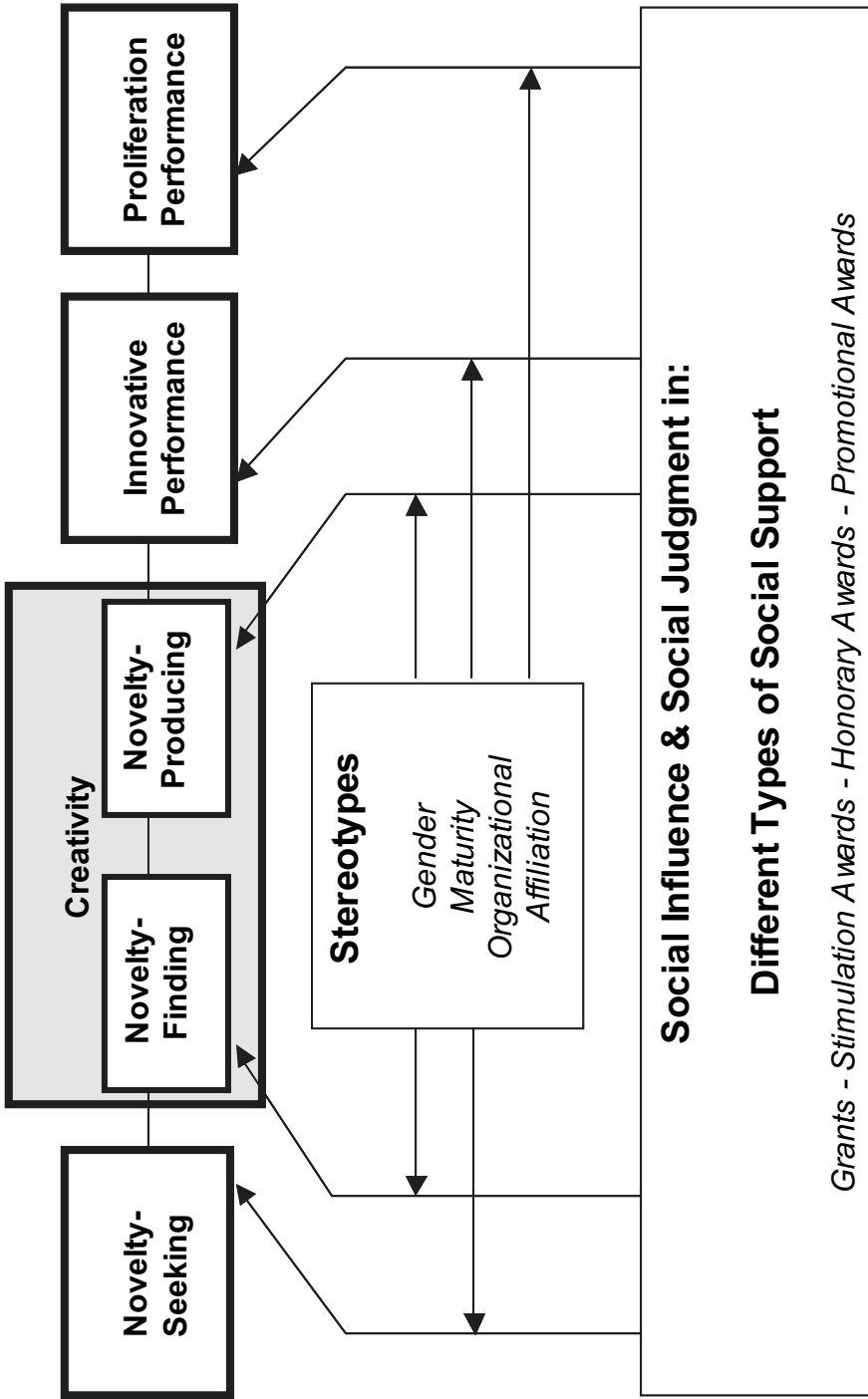
The following hypotheses on stereotypes and social support to the novelty generation can be derived from this chapter:

- H4.1 *Members of negatively stereotyped groups are less likely than positively stereotyped groups to succeed in grant and award procedures in the field affected by the stereotype.*
- H4.2 *Members of a negatively stereotyped group are more likely to participate in grant and award procedures involving application rather than nomination procedures in the field affected by the*

stereotype.

- H4.3 *Members of a positively stereotyped group are more likely to participate in grant and award procedures involving nomination rather than application procedures in the field affected by the stereotype.*
- H4.4 *Members of a negatively stereotyped group are likely to receive less validation support than members of the positively stereotyped group in a field in which the stereotype is officially condemned but still has an effect.*
- H4.5 *Members of a negatively stereotyped group are likely to receive equal instrumental support as members of the positively stereotyped group in a field in which the stereotype is officially condemned but still has an effect.*
- H4.6 *Members of a negatively stereotyped group are likely to receive less honorary awards than the members of a positively stereotyped group in the field affected by the stereotype.*
- H4.7 *Members of a negatively stereotyped group are less likely to transform instrumental social support into innovative performance than the members of the positively stereotyped group in the field affected by the stereotype.*
- H4.8 *Members of a negatively stereotyped group are less likely to transform a grant into an increase in innovative performance than the members of a positively stereotyped group.*
- H4.9 *Members of a negatively stereotyped group are less likely to transform a grant into an increase in productivity than the members of a positively stereotyped group.*
- H4.10 *The more mature an individual the less likely an honorary award will represent a social recognition for this individual's innovative performance.*
- H4.11 *Large organizations are likely to be attributed a lower innovative performance than small organizations.*
- H4.12 *Individuals in the novelty-seeking professions affiliated to larger organizations are less likely to receive grants and awards than individuals affiliated to smaller organizations.*

Figure 4. 1 Variables Interacting with Social Support in the Novelty Generation Process



CHAPTER FIVE

CONCLUDING PART I: THE NOVELTY GENERATION MODEL, SOCIAL SUPPORT AND SUGGESTIONS FOR EMPIRICAL RESEARCH

Key questions in the theoretical part of this dissertation were: 1) How do novelty-seeking behavior, creative behavior and the innovative performance of an individual relate to each other? 2) Which types of support, in particular which types of grants and awards, support the different processes required for the generation of a novelty? 3) Which factors moderate the provision of support to the individual? In order to address these questions more adequately, a new model was developed: the *Novelty Generation Model (NGM)* (Fig. 2.1). On the basis of this model, a second model for social support to the novelty generation process (Fig. 4.1) was suggested. Within the empirical research project presented in part two of this book, for scope reasons only the innovative performance component of this model will be addressed testing the specific hypotheses formulated on grants and awards in the previous two chapters.

In the following, the conceptual analysis presented in part I will be recapitulated. Two routes for future research will be laid out. Within the NGM, one concerns the switch between novelty-seeking and creativity, that is at the crossroads of social psychology, work psychology and neuroscience/neuropsychology. Here the well-being of the individual novelty-seeker is a central concern. The second route of future research comes up at the switch between creativity and innovative performance and will be started in part II in the specific context of awards and grants. This chapter ends with practical considerations on the application of the NGM in the novelty-seeking professions.

5.1 THEORETICAL IMPLICATIONS OF THE NOVELTY GENERATION MODEL

5.1.1 PLACING NOVELTY-SEEKING, CREATIVITY AND INNOVATION IN THE RIGHT CONTEXT

The major sub-disciplines of psychology helped to clearly distinguish and define the three constructs *novelty-seeking*, *creativity* and *innovation* as components of the novelty generation process. A combination of insights from the genetic/neuropsychological/biological, social psychological, personality and psychodynamic research traditions provided a better understanding of novelty-seeking behavior, the creative process (that is novelty-finding and turning the findings into products), and of innovative performance (related to the social recognition of a novelty).

Novelty-seeking, a dopamine-modulated temperamental trait (Cloninger, Svrakic, & Przybeck, 1993), is presented here as a principal precursor of creating something novel. Novelty-seeking behavior was considered as the first component of the novelty generation process followed by novelty-finding and novelty-production, which is the creative process and subsequently innovative performance. Highly novelty-seeking individuals were distinguished by specific biological and personality parameters that let them experience stimuli differently than less novelty-seeking individuals. Apart from that, a combination with particular personality traits and cognitive characteristics was described which made individuals more likely to experience novelty-finding, which, in turn, and/ or made them more likely to actually ‘produce’ their finding and make it visible to others due to the need for mastery and achievement. The created product then becomes the target of social comparisons and judgments by the environment, which could judge it as novel and thus declare it an innovation. This latter process is also supported by a specific set of personality traits. So, in the definition provided in this dissertation, innovation is about social judgment and the different ways people can achieve social recognition for their novelties. These relationships are summarized in the *Novelty Generation Model (NGM)*, used in the following as a basis for a better understanding of how social support to these processes works.

The NGM is the first attempt to combine novelty-seeking, creativity and innovative performance as distinct constructs within an integrated biopsychosocial model. Such a model has several advantages. First, and probably most importantly, dysfunctional switches in the process of novelty-generation, can be more clearly

identified to explore potential frictions in the novelty generation process. Such frictions may occur when individuals do not succeed in transforming their novel findings into a presentable product or if they do not succeed in getting social recognition in the form of innovative performance. Individuals who may not have found something novel may reach innovative performance because there are social judges who assign it to them. The model hereby illustrates that the psychosocial chain between novelty-seeking and innovative performance is fragile, but nevertheless flexible. Weaknesses in one of the components may only to some degree be compensated by strengths in another component. For instance, individuals that are biologically and/or personality-wise not as novelty-seeking as others, may still have more persistence to see projects through than these others, or they may be more extrovert, sociable and cooperative, which helps them in presenting their work to others. In this way it may happen that individuals with lower novelty-seeking scores become recorded in history as famous novelty-seekers while other individuals with the higher novelty-seeking score will not. In contrast to other models presented in the literature the NGM accounts for such relationships.

The NGM emphasizes personality traits and cognitive characteristics in relation to the motivational set-up of the individual. The most supportive personality and motivational constellation for each of the components could be specified, also identifying intrinsic as well as extrinsic motivation mechanisms. This model serves as a basis for psychologically analyzing the tensions between intrinsic and extrinsic motivations in the novelty generation process as well as the potential dysfunctions they may cause. In this way, cases are accounted for in which individuals seek novelties, not for the satisfaction of their own need of cognition, but because of their needs for achievement. As such, achievement needs represent a disadvantageous extrinsic motivation, while in the case of the innovative performance component they represent a favorable intrinsic motivation, given that innovative performance satisfies achievement needs directly. Achievement needs may also motivate individuals with a low novelty-seeking to force themselves into highly novelty-seeking professions in which creative and innovative behavior is expected. Stress, unhappiness, dissatisfaction of individuals in novelty-seeking professions and/or their environment can be identified as potential symptoms of such deeper-lying frictions between the individual's personality and social role. It may be argued that individuals, their environment and society as a whole would often be better served, if the occupational choice for a novelty-seeking profession was informed by an in-depth knowledge concerning the above factors.

Vice versa, extremely novelty-seeking individuals may experience limitations in their social environment, which can lead to a waste of valuable novelty-seeking potential. It is an objective of the theoretical part of this book to draw attention to the psychological specificities of highly novelty-seeking individuals and the conditions required to deal with these specificities. The social inability to manage the needs of above-average novelty-seeking individuals comes with social, psychological and biological costs for all those involved. Equally, such costs may occur in the opposite case: if the environment is not aware of individuals participating in an innovation process that are not sufficiently fed by novelty-seeking, finding and producing, but only by a well-oiled network of social judges certifying the production of a novelty even if it is not there.

Here is a dearth of theory-building and empirical testing. This theoretical effort to link relevant sub-disciplines of psychology is hoped to provide impulses for future research in these particular work psychological issues in the novelty generation process.

5.1.2 A BETTER UNDERSTANDING OF SUPPORT TO THE NOVELTY-SEEKER

The NGM was used to develop a social psychology of support to the novelty generation process guided by two main questions: Which are adequate forms of support to novelty-seeking, creativity and innovative performance? Which factors moderate social support to the novelty-seeker? In contrast to theoretical approaches in which innovation and creativity are not distinctly defined, the NGM enables to identify fine-grained support effects for each of the three components of the novelty generation process. Three key arguments have been made here. First of all, highly novelty-seeking individuals need other forms of social support than lower novelty-seeking individuals. Second, the kinds of support they require differ for the three stages of the novelty generation process. Third, the support requirements differ with respect to the stages of a novelty-seeker's professional development. And fourth, support has to be tailored to the conditions created by interacting variables, such as the novelty-seeker belonging to a stereotyped social group.

Usually, social support actions in the innovation literature are understood as intended to directly affect the process. In contrast, the theoretical emphasis of the social support framework suggested in this first part of the book was on the ways in which social support (from *interpersonal* or *impersonal sources*) can activate or interfere with the individual's *self-support* (arising from the individual's

personality, genetic and motivational patterns). The theoretical analysis paid particular attention to *instrumental support* (such as material/financial aid) and *validational support* (social esteem, affirmation). Different modes of support transmission were distinguished ranging from constructive *positive support* to *negative support* like social resistance and negative stereotypes. This study focused on neglected forms of impersonal support: *awards* and *grants*. A striking lack of psychological theory-building and empirical studies exists with respect to these forms of support. A typology of awards and grants was offered including honorary awards, stimulation awards, grants and promotional awards. An individual's response to an award or a grant depends on the overall support constellation of the individual, including self-support that he or she could derive from personality and motivational parameters. This constellation was suggested as a key indicator as to whether a grant or an award could come to be a stimulant or a depressant of the novelty generation process.

As a next step, a whole range of stereotypes, which could influence the support provision to the novelty-seeker were identified. On the individual level, the gender and the maturity stereotype were examined in more depth. On the organizational level, the size-stereotype was investigated, which could negatively influence an organization's reputation for innovativeness and indirectly also the innovative performance of the novelty-seeking affiliate. Here again the NGM served to clearly locate the effects of stereotypes in these different processes: Negative stereotypes damage innovative performance. The negative stereotype strikes in particular in the transfer of validational support (such as social recognition and honor) rather than instrumental support (such as financial support). As a positive effect, negative stereotypes can function as a form of negative support to the processes of novelty-seeking and creativity in stereotyped individuals in that they mobilize energies in the disadvantaged to work against the status quo.

5.2 TWO POSSIBLE STREAMS OF FUTURE RESEARCH INTO THE NOVELTY GENERATION PROCESS

5.2.1 THE SWITCH BETWEEN NOVELTY-SEEKING AND CREATIVITY: A SOCIAL NEUROSCIENCE APPROACH

The neuropsychological parts of the NGM concerning novelty-seeking and creativity will not be addressed in the empirical part of this dissertation project. However, what is possible here is to indicate some of the future research possibilities. Relating physiological constructs to psychological ones requires the measurement of both within the same research setting (Cacioppo, Berntson, Lorig et al., 2003). This means to investigate processes in the brain while taking the personal and social conditions (social stimuli) into account under which the individual operates at that moment. In chapter two, a number of key research questions have been suggested concerning these first parts of the novelty generation process, for instance: Do the genes DRD4, DRD2-A2 and SLC6A3 influence creative behavior through the novelty-seeking temperamental trait? Or, when engaged with the processes of novelty-seeking, finding and producing, are highly novelty-seeking individuals more likely to show higher brain activation in the mesolimbic dopamine pathway and particularly in the *nucleus accumbens* than lower novelty-seeking individuals? Further, is there an N-shaped relationship between the novelty-seeking scores of individuals and their performance in the creative process? This is to say: Are extremely low and extremely high novelty-seekers likely to achieve lower novelty-production records than individuals with only slightly above average novelty-seeking scores? And finally, do highly novelty-seeking individuals run a particular risk of suffering from substance-related disorders and mood disorders such as cyclothymia or the experience of manic-depressive cycles? Is the risk particularly high in a social environment where their need for cognition, or mastery and achievement needs remains unsatisfied and they reach for drugs to reach at least a transient sense of well-being? How do various social support conditions interact with these processes?

There have been some attempts to study creativity from a neuropsychological perspective (Bekhtereva, Dan'ko, Starchenko, Pakhomov, & Medvedev, 2001; Carlsson, Wendt, & Risberg, 2000; Martindale, 1990). Also creative processes have been explored by using the concepts and methods of cognitive science (Smith, Ward, & Finke, 1995); concerning the genetic basis of novelty-seeking research is still in its infancy (Prolo & Licinio, 2002).

On the basis of the NGM, one further step could be taken in research on novelty generation: First of all, experimental research can be conducted to relate novelty-seeking (using the TCI) and creativity. And as a next step the insights of three levels of analysis could be joined: the *social level* investigating motivational and social factors influencing an individual's behavior and experience, the *cognitive level* concerned with the mechanisms of information-processing underlying social phenomena and the *neural level* concerned with the mechanisms in the brain underlying those information-processing mechanisms. The attempt to join these levels belongs to the basic research maxims of *Social Cognitive Neuroscience*, an interdisciplinary field that has emerged in recent years (Ochsner & Lieberman, 2001). Some have already earlier made efforts to link these levels. Examples are research projects on the relationships between social support, stress and physiological processes (Uchino, Cacioppo, & Kiecolt-Glaser, 1996) or relationships between levels of neurotransmitters and neurohormones mediating social behavior (Taylor, Klein, Lewis et al., 2000) or research to link psychosocial outcomes to changes in psychophysical effects, as in the case of increased periods of contemplation (Cloninger, 2004, p.260).

Research on the neuro-physiology of brain microstates and psychosocial variables could study how and when brain systems are used to mediate motivated novelty-seeking and creative behavior under certain conditions of social influence as described in chapter two. Neuropharmacological approaches as well as neuroimaging would help to assess links between dopamine levels and performance. To start with, pharmacological techniques that correlate social cognitive variables with dopamine levels could, at least indirectly, reflect brain mechanisms. The next step would be to draw direct inferences about the brain circuits used to respond to social stimuli to the novelty generation process. Functional magnetic resonance imaging (fMRI) has made it possible to locate task-related activity in the brain (see chapter two). Neuroimaging could also help to distinguish which parts of novelty-seeking and creativity are automatic and which components are controlled (Lieberman, Gaunt, Gilbert, & Trope, in press). Also, combinations of neuropsychological tests of attention could be used to draw inferences about the brain systems involved in novelty-seeking and creativity combined with measures on creativity. Tests to measure creativity (King & Anderson, 1995, pp. 15-19) are available, but for some of these tests refinement will be required to make them practicable for experiments on mapping the brain areas. Of course this can be supplemented by personality measures used to determine the participants' novelty-seeking behavior- most importantly the TCI questionnaire (Cloninger, Przybeck, Svrakic, & Wetzel, 1994), or behavioral measures of information search such as the use of optional information

(Loewenstein, 1994, p.85). Such measures could also draw on social cognition research on epistemic motivation (Kruglanski & Webster, 1996; Kunda, 1990). To capture the social level it is then possible to include social support conditions versus support deprivation conditions in these experiments.

The theoretical foundation for multi-level research on novelty-seeking, creativity and innovation has been laid to show some merits of an integrated biopsychosocial model for a better understanding of the novelty generation process as presented in Figure 2.1 in chapter two. However, what is really the point of gathering such knowledge? One may wonder whether such an approach is not too much and too integrated to be able to produce falsifiable and reproducible results. On the other hand, these different levels simultaneously affect the individual in the novelty generation process and any effort to capture elements of them within one research design are worth to be taken seriously. Research in this field can help to improve our understanding of the underpinnings of what all the policy makers and managers propagate and set their hopes in this civilization: creativity and innovation. However, does it help here to know more about the brain circuits involved in these processes? Some may fear a brave new world in which such knowledge could be (mis)used. They may foresee science-fiction scenarios come true in which managers seek to encourage the creativity of their employees by manipulating their brain circuits, for instance by administering 'crea-pills' to them every morning upon their arrival in the company. In such a world one would be amused about the practices of artists and scientists in earlier millennia who supported their creative activities with conventional drugs like caffeine, nicotine or cocaine. One would memorize them as part of a long history of extending the *conditio humana*, as pioneers in those pitiable old times in which human beings had to suffer from depression in exchange for dopamine to prime their synapses for creative moments!

Setting the above scenario aside for a moment, I would like to formulate the underlying objective of such future research in a different, more positive way: Social neuroscience on the topic of the novelty generation process may well contribute to an overall science of human well-being (Cloninger, 2004) that is ultimately the prerequisite of the welfare of entire societies and humankind as a whole. This includes the search for solutions to health problems such as the highly novelty-seeking individuals' proneness to alcoholism or mood disorders, self-defeating tendencies and unproductive hyperactivity. Such mental states dramatically interfere with the individual's well-being. Measuring the biomedical and psychosocial parameters of for instance highly novelty-seeking individuals who struggle and are unable to let go of inner and outer blockades can help to assist

them, NOT to waste their potential and help them grow in their awareness about themselves in the novelty generation process. Some characteristics of a social environment activate or deactivate predispositions to particular dysfunctions. This could mean dissolving psychological as well as economic dysfunctions that may be the consequence of internal and external constraints. Negative stereotypes have been shown in this study to drastically interfere with the well-being of those affected by them. Less social recognition for similar work quality experienced by female novelty-seekers as compared to their male colleagues has been found to come with severe mental health risks. Psychological research on the individual level has long been identified as a means of protecting human welfare (Miller, 1969). In this sense, the NGM provides a basis for a health psychology of the novelty-seeking professions. The model delivers the tools for an anamnesis of potentially novelty-seeking-related dysfunctions as well as the assessment of risks in the different components of the novelty generation process, including the assessment of factors on the neural, cognitive and social level. Research based on the NGM may for instance help novelty-seekers as well as those others who socially influence them to let go of habits of thought that may paralyze the novelty generation process in one or more of its components.

Finally, Part I as well as this research outlook on a social neuroscience is meant to restore the more exquisite meanings of creativity and innovation in an attempt to change them from the container terms and hackneyed fashion words they have become back to their more qualitative contents. Something 'really new' is rare and valuable, not as managers and policy makers would like to have it: deliverable on demand, prêt-à-porter, generated more by a well-oiled social judgment carousel than by a creative mind. A social neuroscience or social neuropsychology approach is more likely to illustrate the wonder of creating something novel rather than to scientifically eliminate that wonder. Creativity is also about a sense of hope, awe, humility, to grow in awareness and to experience higher levels of contemplative thought. It is about a willingness 'to share one's whole being in the act of creation. (...) In its pure form psychological coherence is comprised of wisdom, well-being and creativity' (Cloninger, 2004, p.206-207).

5.2.2 THE SWITCH BETWEEN CREATIVITY AND INNOVATIVE PERFORMANCE: AWARDS AND GRANTS AS SOCIAL SUPPORT TO THE NOVELTY GENERATION PROCESS

A second stream of possible research relates to the specificities of social comparison and social judgment processes in the process of turning a novelty into an innovation. Which are the most adequate forms of social support to novelty-seeking, creativity and innovative performance respectively? What are the factors mediating social support to the novelty-seeker? First empirical steps with respect to these more specific social psychological questions arising from the NGM will be taken in the next part of this book. There the focus will be on the innovative performance of individuals receiving social support in the form of awards and grants. In Chapter three and four a set of hypotheses on this specific research area has been developed that will be tested in Part II of this book. An industry in which awards and grants play an important role will be described in chapter six. Then, a large-scale empirical analysis will be presented in chapter seven followed by conclusions and suggestions for future research on this specific issue in the last chapter of this book, chapter eight.

5.3 PRACTICAL IMPLICATIONS OF THE NGM FOR NOVELTY-SEEKING PROFESSIONALS

The NGM as well as the framework on support mechanisms suggested in this book offer means to the novelty-seeking individuals to analyze their own support status in occupational as well as private settings. A careful analysis can help detecting the weakest links in the individual's processes of novelty generation in these settings. Along the lines of what has been discussed in this book, the novelty-seeker may find it helpful to reflect on the following set of questions:

Where are my strengths and weaknesses within the whole process of generating a novelty: Are they in the *seeking* of novelties, the *finding* or the *transformation of the findings into products*? How am I doing when it comes to finding *public recognition* for these products? What about the *proliferation* of my products to a wider public? Do I receive the social support I need, or do I perceive myself as a 'lonely fighter'? What are the main sources of support I draw on? Are they *interpersonal* or *impersonal sources*? Are they balanced, and how does each of these sources affect my *self-supportive energies*? Are there sources of support that paralyze my intrinsic motivation? What is the actual benefit foregone when distancing myself from these sources?

Do I use *instrumental support* (such as material/financial aid) in a good manner and can I accept and handle *validation support* (social judgment, esteem, affirmation, criticism)? Can I accept support, or am I too proud or too convinced about my own ideas to take up support from others? How does support reach me: via a positive or a negative mode? If negative support weighs heavier- why is this? How can I tap more positive support sources and use them in an equally constructive manner? How do I deal with social resistance and negative stereotypes affecting me personally? What motivates me to generate novelties? Am I genuinely enthusiastic about what I am doing? To what degree am I concerned with what others will think about it? How does this concern affect the degree to which I seek support from others? Could I apply for more for grants and awards? Am I forgoing a lot of support that would be there for me, if only I reached out for it? If I have received grants and awards- how did they work for me? Did they do for me what those who gave them to me intended them to? How do I feel about being supported at all? Do I feel I have to defend myself against external influences? Defend my intellectual independence? What kind of novelty-seeking individual am I? Am I a scientist or an artist or something else? Which domain of novelty-seeking does correspond best to my individual way of generating novelties? Concerning my publisher/ my gallery/ my research institute etc: How do I feel about the organization I am affiliated to? Do they provide me with the services I need for generating novelties? Do they provide me with the needed resources to generate novelties? Do they support activities that support a wider proliferation of these novelties? If not, which kind of organization would be more adequate in supporting me? To what degree is the organization using my services and to what degree am I using theirs? Does the balance feel good? Do I feel inspired by other organizational affiliates, does the organizational support staff succeed in assisting me in reaching my core objectives and is the staff providing support in complementary domains there for me when I need them? To what degree am I concerned with giving something back to all these providers- to the organization, to society as a whole, to the people who support me? And what does this concern do with me? Finally: Am I satisfied about my work and my work environment? Do I have a sense of well-being in this environment? Where are the links in my processes of novelty generation that could be improved? Which forms of support can best assist me in this?

Part I of this book has explored the theoretical background on the basis of which potential answers to the above questions can be developed. These questions are meant to create awareness of the theoretical as well as practical psychological

aspects of the individual's well-being and performance in the novelty generation process, as well as the support processes affecting the individual.

Apart from the individual novelty-seeker, the issues addressed in the above catalogue of questions are relevant for those who decide about the support that the individual will receive. The NGM as well as the framework on support mechanisms can assist policy makers and managers in governments and institutions such as publishing houses or award and grant juries to recognize and deal more adequately with highly novelty-seeking individuals. After all, they are among the actors that have a key responsibility in helping the individual to transform their novelty-seeking and creative potential into innovative performance. The NGM approach to the novelty generation process can assist policy-makers in drafting more fine-grained policies and to be more aware of their potential effects, for instance to whom and when to give different types of grants, awards and subsidies in general. This study may also serve policy makers and managers in other professions, where novelty-seeking has traditionally not been an essential feature, though where the importance of novelty generation has risen sharply. In short, using the NGM, a policy responding to an objective like 'we have to be more innovative' can be informed by a far closer look into the processes involved in generating a novelty.

The following chapters (Part II of this dissertation) will generate more detailed and empirically founded insights for practical advice on the use of grants and awards in support of the innovative performance of their receivers.

PART II

AN EMPIRICAL STUDY
OF AWARDS, GRANTS AND
INNOVATIVE PERFORMANCE

CHAPTER SIX

INDUSTRIAL AND ORGANIZATIONAL SPECIFICITIES OF NOVELTY-SEEKING PROFESSIONS: THE EXAMPLE OF THE LITERARY ARTS & PUBLISHING

Books are the treasured wealth of
the world and the fit inheritance of
generations and nations.

Henry David Thoreau

6.1 A WORK PSYCHOLOGY FOR NOVELTY-SEEKING PROFESSIONS

This brief chapter is meant to serve as a connecting link between the foregoing theoretical chapters and this empirical part. Here, a modest subset of the foregoing considerations on the novelty generation process, social support and stereotypes will be translated from theory into practice. I start out with a brief account of the industrial and organizational specificities of the professions to which this research is most relevant: *Novelty-seeking professions*. These are professions such as the arts or the sciences in which the novelty generation process is essential. Novelty generation as a core activity seems to require a particular organizational setting, which differs from the usual firm-employee relationships: Novelty-seekers tend to *affiliate* themselves to organizations rather than *work for* organizations. Examples of organizations operating with such an organizational affiliation setting are among others research institutes, publishing houses, or galleries. Here ‘organizational affiliates’ can be distinguished from

those who perform support services to them, the ‘organizational support staff’, consisting of ‘core domain support staff’ and ‘complementary support staff’. In the example of a publishing house, editors would be the core domain staff as opposed to production, marketing and distribution staff offering complementary support.

Most of the existing research on creativity and innovation in the context of organizations refers to members of organizations in the ordinary sense of firm-employee relationships (see for instance Amabile, Conti, Coon, Lazenby, & Herron, 1996; Glynn, 1996) rather than such affiliate relationships. Also the service innovation management literature does not pay attention to the specific mix of employee and service client features characterizing the organizational affiliation setting in the novelty-seeking professions. This specific relationship between individual and organization implies the need for a different work psychology than the one applied to more conventional firm-employee relationships.

For this reason the next section takes a closer look at this specific organizational affiliation setting which has proved so apt for the work of novelty-seekers. The focus will be on the kinds of support, which the novelty-seeker may receive by affiliating to an organization (6.2). This will be linked to the discussion of social support to the novelty generation process (chapter three). Another section provides a thorough review of social support to novelty-seekers in the field that has been chosen for the quantitative research project presented in the following chapter: the literary arts and publishing (6.3.1). Again, this will be done from the perspective of social support. Section 6.3.2 describes some stereotypes operating in this field and interacting with social support. In 6.3.3 a case study is presented of an extraordinary award that perfectly illustrates the social judgment mechanisms discussed in the other sections. The chapter concludes with some considerations on the literary arts and publishing as an empirical research field as a prelude to the quantitative study presented in the next chapter.

6.2 SUPPORT FROM ORGANIZATIONAL AFFILIATION IN NOVELTY-SEEKING PROFESSIONS

Working in the novelty-seeking professions comes with particular psychological antecedents and consequences. This has been found for the field of the arts (Fairbain, 1938) as well as the sciences (Feist & Gorman, 1998; Klahr & Simon, 1999; Roe, 1953, 1982; Simonton, 1988). Working in these professions requires specific support schemes, also particular arrangements for organizational

support. In order to obtain organizational support, novelty-seekers can affiliate themselves to organizations like galleries, publishing houses or research institutes. These typical organizational settings in which highly novelty-seeking individuals only affiliate themselves to, instead of working for, organizations have not developed accidentally. In social psychological research it has been shown to be more conducive to idea-generation and creativity to be working alone rather than within groups (Diehl & Stroebe, 1987; Stroebe & Diehl, 1994). Also it has been found that conservatism and rigid, formal management structures within organizations impede creativity (Kimberley & Evanisko, 1981). Novelty-seekers may experience such factors as disturbing their sense of well-being, they may perceive them as controlling, increasing extrinsic motivation, and correspondingly decreasing the intrinsic motivation which they need to be creative (Amabile, 1988). Hollingsworth, who studied winners of Nobel prizes, found that most of them have been affiliated to research institutes which are not organized in the traditional university fashion of separate departments, but as an open research space allowing for cross-fertilization (Hollingsworth, 2004). Furthermore, using a social network perspective on the individual's creativity, Perry-Smith and Shalley argue that weak ties (characterized by infrequent interactions, low emotional closeness, one-way exchanges) are likely to facilitate creativity at work compared to strong ties (frequent interactions, high emotional closeness, reciprocity) (Perry-Smith & Shalley, 2003).

Weak ties of affiliation as opposed to tight employee contracts leave the professional identity of the individual novelty-seeker more separate from that of the organization. The role of the organization as viewed in this book is that of the socially supportive organization which, in a sense, simply provides a support service to novelty-seeking individuals and in return takes a share in the value that is generated with the help of its support. If the culture of an organization in novelty-seeking professions is not marked by this service idea, but affiliates are seen as working for the interests of the organization in the first place (like is normal in other professions), problems are likely to occur.

Adequate organizations in the novelty-seeking professions take the role of facilitators (Bilton, 2000). The organizations of affiliation may support its affiliates in building up status in the particular environment of social comparison in which the organization operates. In fact, an organization can potentially offer its affiliates all the different support types discussed in chapter three, either via interpersonal or impersonal sources, and especially instrumental, informational, validation, as well as emotional support. These support services may be directed to each of the different processes of novelty generation: Novelty-seeking, creativity as well

as the innovation process. A central issue in the provision of support is: Does an organization recognize the novelty-seeker's support status and potential deficits and is it able to assist in generating the type of support required for compensating for these deficits? Prerequisites for providing the right type and amount of support to a novelty-seeker at the right point in time are thorough estimations of each individual's support status as well as this individual's personality and motivational set-up. Ideally, this is a custom-made process. Organizations in the novelty-seeking professions can for instance add value by assisting its affiliate in moulding potential impersonal support such as grants and awards with other obtainable support for the good of innovative performance, that of the novelty-seeker and after all also its own. Another objective is to assist the novelty-seeker in generating intrinsically motivated self-support by shutting out extrinsic constraints and motivations as far as possible. Also, an organization of affiliation should recognize potential impersonal negative support sources, for instance caused by stereotypes affecting the specific novelty-seeking profession that the organization and individual operate in. In an organization with a climate of openness for the new, novelty is also sought where the stereotypes hide them: in mature producers, in women, in the commercially successful (see chapter four). Good organizations are likely to develop specific strategies of how to handle such stereotypes in the innovation process.

Most of these forms of organizational support require particular psychological skills and experience on the side of the support provider. Organizational support staff in the novelty-seeking professions will profit from acquiring the capabilities to deal with the psychological specificities of highly novelty-seeking individuals. For instance, frequent mood swings of novelty-seekers from hyper to depressed states (see chapter two) have to be managed, also by the organization. This means among others, allowing for the high above average productivity in manic periods, and handling the big egos and delusions of grandeur as well as the their need for organizational slack in depressive cycles. If the support staff does recognize and understand how to deal with these specificities, they will be less likely to provoke defensive behaviors in their affiliates. This allows novelty-seekers to act free from defensive behaviors and to prevent potential dysfunctions in the overall process of novelty generation. However, this does not mean that the affiliate needs to be pampered and treated in a way, which would reinforce the stereotypes with which many artistic or scientific novelty-seekers live (see chapter four). The challenge for organizations would be to find a balance between taking psychological specificities into account and doing so without reinforcing them.

In the following, this chapter describes the characteristics of one specific novelty-seeking profession that will serve as the empirical field for the quantitative research presented in the next chapter: the literary arts and publishing industry. A key question to be answered is: Which type of publishing house can best support the generation of literary novelties and why? Organizational support to the novelty generation process is not without problems, since even whole organizations have to deal with stereotypes (see chapter four), which may affect the affiliates, among others in their quest for obtaining other forms of support such as grants and awards.

6.3 THE LITERARY ARTS: AN ARTISTIC NOVELTY-SEEKING PROFESSION

N'est-ce pas un premier élément de complexité ordonnée, c'est-à-dire de beauté, quand en entendant une rime, c'est-à-dire quelque chose qui est à la fois pareille et autre que la rime précédente, qui est motivée par elle, mais y introduit la variation d'une idée nouvelle, on sent deux systèmes qui se superposent, l'un de pensée, l'autre de métrique?

Marcel Proust, Le Côté de Guermites

6.3.1 SOCIAL SUPPORT TO GENERATING LITERARY NOVELTIES

In which ways can a writer/poet be supported by an organization in the generation of literary novelties? There are a large number of practical books on publishing, but only few theoretically founded accounts, let alone on the above question. Especially the literary sector of the publishing industry has been neglected in scientific research. The few theoretical accounts available, spotlight the industry from economic, sociological (Coser, 1982), philosophical and managerial perspectives. They describe organizational structures and processes in the value chain of the industry and national support systems. International accounts are scarce. National references look at the book publishing industry either in accounts on the key actors and mechanisms characterizing the book trade (Heinold, 1988), or from more historical points of view (Gedin, 1975; Wittmann, 1999) or contain

practical documentations of sources supporting development in the literary sector (Wamsbach, 1987). Others take the perspective of the editor (Henderson, 1980) or the author (Dennison, 1984); focus on practical questions of marketing in the book trade (Baverstock, 1993); give rather practical accounts of industry figures and legal as well as procedural practices (Greco, 1997; Potter, 1990); private and public good features of literary products or demand and supply structures for their different markets and literary publishing as an enterprise (Bailey, 1990; Coser, 1982; Rectanus, 1987; Tietzel, 1995). Key topics have been so-called consolidation processes in the industry and the tension these create between the poles of culture and business (Bourdieu, 1992). The literature relevant to literary production from a psychological perspective is even smaller: It consists of experimental research on literary innovation (Martindale, 1973); research on creativity in poets (Patrick, 1935); the relationship between age and literary creativity (Simonton, 1975); psychological mechanisms driving the creativity of writers (Amabile, 1985) and psychological mechanisms driving the literary history as a whole (Martindale, 1975).

From the perspective of the self-support which the writer/artist may rely on in the novelty generation process, there are a couple of possibly defining extrinsic motivation moments in the life cycles of their books that could influence their initial intrinsic motivation of seeking to write something novel. A defining moment could be when the publisher tells them that their writing is going to be published, or when their editor tells them that s/he has an old friend in the feuilleton section of an established newspapers or journals. Furthermore, a defining moment for a writer is to learn that his/her work is going to be reviewed. Also an extremely negative review can help to create attention for a book, a case that should be considered as a form of negative support. According to the social contrast effects in innovative performance (chapter two) average reviews can be expected to have the least effect. And of course, short-term sales figures after the reviews are another key moment potentially affecting the motivational state of the writer.

From interpersonal and impersonal support perspectives, a crucial feature of the literary publishing industry is that the support provided in the industry can be divided into support for the mass-market sector and support for the so-called 'high literature' sector that supports highly novelty-seeking productions. This division of the industry is of crucial importance, as shows in the ongoing debate about whether the book publishing industry should be treated as a locus of intellectual and cultural endeavors or rather as a commercially spirited place. In the sociology of book publishing, commercially oriented work (low or popular

culture) has been distinguished from work, which is not directed towards the mass market (high culture), a distinction that has also been made on grounds of distribution patterns and the social groups, which form the audience. Here a *cultured circuit* has been distinguished from a *popular circuit* (Escarpit, 1965). The term ‘cultured’, however, does sound somewhat unfortunate. What is actually meant is a rather closed circle of specialists in the literary field such as writers, editors, literary critics, professors and students of literature, as well as private consumers who are dedicated to literature. It might therefore be more appropriate to call this network a ‘specialized circuit’. Similar divisions have been made from, for instance, a demand and supply perspective that contrasts *producer-oriented publishers* with *distributor-oriented publishers* (Cosser, 1982). Producer-oriented publishers nurture experimentation and regard a close relationship between producer and consumer segments as very important, whereas distributor-oriented publishers tend to aim at a large audience with more formulaic products. Yet another distinction focuses on profit patterns, where firms closer to the commercial pole focus on short-term profits and those firms closer to the cultural pole consider long-term profits and the accumulation of ‘symbolic capital’ of cultural innovation as more important (Bourdieu, 1992). In this study, I would like to label the mass-market end the ‘trade publishing sector’ and the artistic end ‘literary publishing sector’.

These different types of publishing houses differ in the strategies via which they support their authors. It is a cultural strategy to reap long-term profits from titles on the backlist. This backlist consists of all the possible titles that a publisher has in collection, whereas the frontlist purely consists of newly produced titles. The mass-market strategy centers around short-term profits from front-list titles. A well-known example for the long-term backlist strategy is the French publishing house *De Minuit* investing in Samuel Beckett, who was not particularly profitable while on the frontlist, but turned out to bring immense long-run profits on the backlist. For publishers close to the commercial pole it is most important that products meet a pre-existing demand in established forms and result in short-term profits. The novelty-seeking and novelty-creating end of book publishing is known for its unpredictability and for the fact that publishers are more prepared to take lower margins for the sake of a culturally reputable trade publishing program (Drabbe, 1990). The best possible outcome for a novel product is passing the social judgment process of the high literature sector with a novelty-predicate and enter the so-called ‘literary canon’. This canon does not contain the typical short-run bestsellers, but those long-selling classics that have been certified as top quality literature in the course of history.

In the literary publishing sector the support of stylistic innovation is considered a key quality of high art, as a result of which the social judgment process is most effectively conducted by professional experts, critics and colleagues. Literary publishers at the high literature end wish to be considered as guardians of the grand literary publishing tradition. Literary publishing houses from the novelty-seeking sector are typically seen as ‘the brain children of creative entrepreneurs’ (Levin, 1996). They are considered to have the potential of discovering authors who stand chances to be joined to the ‘literary canon’ on a national or international level. The difference between organizational novelty-seeking on the one hand and being commercially successful on the other is very well described by Simon Michael Bessie, the founder of *Atheneum Publishers*:

Isn't it true that a small house may find or develop a bestselling author, but how to keep him against the greedy giants? Good question. In these past thirty years, we have seen the Norman Mailers, the Irwin Shaws, the James Clavells, the Joan Didions, and so many others leave the small houses where they began to follow what looks like the sight of gold. And I know no cure for this. I'm tempted to say that large houses are better equipped to acquire bestselling authors, but maybe small publishers are as well equipped as ever to discover and develop them (Henderson, 1980, p.113).

There is an overwhelming number of publications in literary publishing per year, for instance 80,000 in Germany alone. So the importance of a social judgment machinery identifying the most important novelties among all these publications is essential. Whereas the literary publishing sector works primarily via the established social judgment channels, the trade publishing sector has evolved into a loud marketing business: publishers and their content producers have to ‘make noise’ to be noticed within this wave of publications per year. If a writer is lucky, s/he is affiliated to a publisher with sufficient resources for supporting its affiliates with marketing and publicity machineries and editors with excellent connections to the influential press as well as a favored position in the traditional social judgment circus. Whether the book of a writer/artist gets the attention of the social judges or not also depends on whether its genre is favored by the dominant reviewers in a certain period of time. There were, for instance, times when only poetry was accepted and discussed and novels either did not yet exist, or were considered an inferior medium (Bourdieu, 1992). After the rise of the novel in the second half of the 19th century, the tides turned, as a result of which the appreciation for poetry diminished. These days, for instance in German

literary publishing, editors perceive a slight revival for poetry, which publishers cautiously try to exploit and reinforce by their program choices. Furthermore, the right choice of medium can help the rise or fall of a literary product. Traditional or electronic, hardcover or paperback: Style in form and content often strongly interacts in the eyes of the social judges (Schweizer, 2003).

Finally, impersonal support instruments such as grants and awards play a very important role in the literary publishing industries. The good reputation of a publishing house can assist its affiliates in obtaining such forms of support. Grants and awards will form the subject of the quantitative study presented in the following chapter. As has been argued in the previous chapter, stereotypes may interfere with the likelihood of an individual to receive such impersonal support. Some of these stereotypes on the individual and organizational level will be discussed in the following section.

6.3.2 STEREOTYPES IN LITERARY PUBLISHING

How much support a writer/artist may be able to obtain in a field also depends on the degree to which s/he is affected by and is responding to the stereotypes dominating the literary publishing field.

Individual-level stereotypes. One particularly important aspect of the social judgment ‘circus’ is the mystery around the writers, which has to be built and fed. One may have noticed on book covers or press releases that editors of writers seriously aiming at joining the literary hall of fame rarely choose photos with open, sympathetic or laughing faces. The reason: great intellectual genius stereotypically can better be presented with an impermeable face, potentially intriguing to readers. The presentation of depressed and twisted souls seems to be considered by the majority as more in line with the image of above-level intellectual capacity which therefore results in higher public recognition. In addition to this stereotypical set, being an artist has become accepted as the perfect excuse for egocentric and otherwise unacceptable behavior.

Also the maturity and the gender stereotype have dominated literary publishing with respect to the attribution of innovativeness. The first publishers who agreed to proliferate the writings of women organized around stereotypes and tricked the negative social judgment for female novelty-seeking for instance by obscuring the womanhood of their affiliates: the female novelist publishing under a male pseudonym (and thereby eliminating the effects of the female stereotype in the innovation process). A shining example is George Eliott. She, in the role of

'he' has become acknowledged as one of the greatest and most influential of English writers. In her female identity she was Mary Ann Evans born 1819 in Warwickshire. Today, female writers are accepted in the field, though probably still not completely in all genres. It may for instance be expected that particularly in genres, which are related to the domains traditionally assigned to women, such as children and kitchen, they publish equally with their male colleagues, and that male publications dominate other genres which are more respected in the literary tradition, such as the genre of *Belles Lettres*. Equally the maturity stereotype has been handled in literary publishing. Publications of older authors usually are assigned the predicates of "mature voice", "sound", "round", "arrived", whereas it is the young that are discovered to have an original voice.

Organizational-level stereotypes. One of the key issues in research on literary publishing has been the increasing threat of concentration. Concentration has been argued to result in a smaller number of large book publishing firms producing a smaller number of mass-marketed titles at the expense of the diversity and quality of the books (Bagdikian, 1987). After the process innovation by Gutenberg, mass production and decreasing variable production costs have determined the development of the book publishing industry. Events such as the paperback revolution of the 20th century have only accelerated the race for quantity, increasing organizational size and market power, which constantly nourished art criticism's most persistent stereotype: the decline of culture in the organizational concentration race. Large organizational size and a good reputation for innovative performance only very rarely go together (Schweizer, 2000, 2001a, 2001b). There have also been a number of cases where the most talented human resources behind literary imprints left when their literary acumen was strained too much by compromises after a takeover by a larger company (Levin, 1996). Such cases feed the stereotype that has come to affect the whole industry: large publishing firms produce less novel contents than small firms.

From the above literature review it is clear that there are two ideal types of publishers perceived in the field: While the typical literary publisher is perceived as small and aiming at cultural innovative performance, the trade publisher is perceived as aiming at increasing its size, commercial success and financial power. Furthermore, the literary publishers stereotypically take risks to discover and nurture original and avant-garde novelists and poets and want to provide an outlet for controversial and unpopular ideas, experimental fiction exploring new styles, challenges of conformity, dogmas and any limits on free expression such as obscenity laws. With respect to its readers the literary publisher is perceived to satisfy the aesthetic sense and the need for new insights of smaller audiences

with less standardized tastes. In contrast, the typical trade publisher is seen as risk-averse, which shows itself in the publication of formulaic genre novels, predictable bestsellers, preferably by celebrity authors. Instead of exploring new styles, the trade publisher exploits what the literary publisher has already explored and which has already passed the social judgment process. This makes it possible to address a mass audience and adopt mass marketing campaigns. Innovative literary publishers are typically undercapitalized, and give the impression of ‘economic innocence’ (Leschke, 2000) or ‘economic ignorance’, because they are mainly oriented towards long-term profits. They often are unable to appropriate returns from their discoveries when these discovered authors migrate to financially stronger publishing houses. What remains for them is the accumulation of ‘symbolic capital’, that is a good reputation for being a novelty-seeking publisher supporting cultural innovation. In contrast, the typical larger trade publisher assigns most importance to rapid turnover and short term profits and consequently has a good financial resource position mainly on the basis of taking over and exploiting discoveries in a mass market.

Here the practical importance for the novelty-seeking writer/artist is to be well-aware of these stereotypes before choosing to affiliate him/her to one of them. The decision should depend on the aspirations of the writer/artist: Does the status of a best-selling marketing star appeal to him/her, or does he/she sooner wish to be a highly artist considered highly innovative though maybe living in financial margins? Organizations and their reputations can influence the affiliates’ chances to receive other forms of support, for instance their chance to receive grants and awards. This will also be illustrated in the following brief case on an extraordinary award event in literary publishing.

6.3.3 HOW THE LITERARY AWARD CIRCUS WORKS: AN EXTRAORDINARY CASE

The following short case of an award procedure is supposed to illustrate the social judgment and support processes as well as the role of organizational affiliations discussed above. The case of The Frankfurt eBook Award describes a specific type of award, which has been defined in chapter three as promotional award. It promotes a radically new technology in the literary publishing industry: The eBook. It is a handheld electronic reading device, which allows the on-screen reading of books, periodicals or other documents. Publishers used to the book in print and paper format, ‘the p-book’ are now confronted with the e-Book, or in real nethead slang: ‘treeware’ versus software. The eBook system uses screens

and digits as a substitute to paper and print and uses the Internet as a channel to deliver literary content to the end user, which is the electronic equivalent to the vans taking the books from the distributors warehouses to the book shops in the physical distribution system. The introduction of eBook technology stagnated in the phase where the actual customer base was still limited to some highly novelty-seeking media junkies. To overcome the extremely high barriers to entering the literary publishing sector, eBook Technology firms adopted a strategy of creating a specific social judgment process to create legitimacy for the new technology and thereby acceptance on the side of the social judges and readers. The *Frankfurt eBook Award* (FeBA)¹ was established.

Conferred by the International eBook Award Foundation (IeBAF), the Frankfurt eBook Award was the first prize in the world designed to recognize e-publishing and technology achievements in the electronic book industry under the cover of an honorary award to famous writers. The objectives of the award clearly represented the interests of its sponsors - among them *Microsoft Reader*, *Gemstar Rocket eBook and Softbook*, *Adobe TM Glassbook* and some other institutions. The official awarding entity was the *International eBook Award Foundation* (IeBAF), which conferred the award for the first time in October 2000, a second time in October 2001 and for the last time in 2002, when it was clear that eBook Technology would not take off at that point in time. According to Peter Mollmann, Judging Director of the IeBAF, the goals of the award were, first, to honor authors published their contents in electronic book format, second, to encourage the publication of books in eBook format among other writers, and third, to bring eBooks to a greater audience of readers.² Most important among these objectives was the 'support of the eBook industry', said Roxanna Frost, President and Executive Director of the IeBAF³. The Frankfurt committee stated that they wanted to 'recognize the importance and the great potential of the new media (the eBook) for authors, publishers and the reading public throughout the world'.

Most of the individuals paid by the sponsors for running the foundation to play representative roles in the organization of the award, had also played an important role in the traditional publishing scene. Examples were *Alberto Vitale*, former chairman and CEO of *Random House*, at the time Chairman of the IeBAF and one of the interviewees for this case study; or *Peter Mollmann*, judging director of the IeBAF, who used to be a publishing executive, among others with *Random House*. Also the juries of the three award events consisted of carefully selected experts: among them were authors, winners of other literary awards and public figures which held important functions in the literary field - for

instance president of a reputable library, literary critic, journalist, literary agent, or professor of experimental literature. According to Alberto Vitale the aim was ‘to pick very important and powerful celebrities (...), which could relate in some way to the new technologies, (...) and which could bring tremendous prestige to the technology. (...) If it had to be a purely literary prize, of course we would have picked a different jury’ (For interview details please see Appendix One). The Frankfurt eBook Award consisted of a number of sub-awards. The judges picked a Grand Prize-Original eBook winner and winners in five other categories, including eBook originals in fiction and non-fiction, eBooks converted from print, also in fiction as well as non-fiction; and finally a winner in the category of eBook Technology concerning ‘the advancement and implementation of eBook technologies and features’.

The sponsors set up the IeBA with extraordinarily award sums - the Grand Prize with 100 000 Dollar and the five categorical awards each 10 000 dollar. In the first IeBA event, most of the winning titles came from leading US-based publishing conglomerates including *Simon and Schuster*, *Random House*, *Doubleday* and *iPublish.com*, *Time Warner's* new e-publishing imprint, but no winners from pure e-publishing start-ups like *00h00.com* in Paris. Also, the majority of the award winners were better-known authors, rather than new talent. One example was *Ed Mc Bain*, American crime writer and one of the eBook award winners and interviewee within this case study. By means of the extraordinarily high award sums the eBook Technology firms could convince such famous writers to agree for three things: allow the publication of their latest piece of work in electronic format before it is published in the traditional format, take a flight to Frankfurt and take part in an award ceremony as a winner of an award which meant nothing to them.

I asked award winner Ed Mc Bain to compare the effect he expected to have from the eBook award to other conventional literary awards. He answered that he did not expect this award to make his work more successful like it had been the case with conventional awards he received in mystery and crime literature circles. ‘Do you think they will say on the jacket: winner of the eBook award?’ he laughed and shook his head. However, he was convinced that ‘Microsoft will get a lot of play out of it in the trade magazines, the *Publishers Weekly*, *Bookseller* and so on.’ Also he thought that the award criteria were designed to be as broad, because it was wise for the technology firms not to exclude people and make enemies in important sections of publishing: ‘The guy from Microsoft is not a complete idiot- he must know what he is doing’ - McBain concluded.

Around the lavish first award ceremony in 2000, there was a lot of controversy

over the exact criteria for the eBook award nominations. Among others it was criticized that some finalists coming from well-known publishing conglomerates did not even qualify according to the foundation's rules, while eBooks submitted by independent and less known publishers would have qualified. Among the submissions only three out of ten titles came from pure e-publishers, whereas the US publishing giant Simon and Schuster, who only launched their first season of original eBooks in autumn 2000, got four of their books on the shortlist. Among the general public responding to the jury's choice in the web⁴, Conny Foster, who ran the e-publisher Ebooksonthe.net claimed that 'Microsoft paid for these awards and it's pretty obvious that they rely on big publishers to provide content for the MS reader'. Pure e-publishers sensed a conspiracy, for instance fueled by the fact that award winner Ed Mc Bain's 'original ebook' according to Simon and Schuster's own web site only came out four months after the print edition. Simon and Schuster later admitted that the listing was 'a mistake'. One e-publisher argued that 'it can hardly be recognized as a prestigious award if it leaves out the pioneers in the field'⁵. In the interview, Alberto Vitale explained that awarding authors from big publishing players were the only way to achieve the aim of the award, which 'is to draw the attention of the publishing community to this new medium- and then we have done it, there is no two ways!' This meant that really innovative content creators making use of the new technology were not supported by this event.

According to Alberto Vitale's the objective of the award was 'the publicity around the new technology', which stands in sharp contrast to his official statement as chairman of the IeBAF, where he communicated that the eBook award 'has taken its place among the most prestigious of literary awards that recognize significant contributions to the world of letters' (www.iebaf.org). In the personal interview his views were more realistic: 'The culture has not yet caught up. Publishers are afraid. They are used to what they do, and they don't like changes in procedures. But one reason that they are that way, is that we don't have proper devices yet. For the rest it is just the fear of change.' Apart from meaningless sales figures and very little publicity, another problem Vitale mentioned was that traditional reviewers did not review eBook contents, 'they are still slow with it and busy with the traditional thing. What is going to drive eBooks is technology, the devices and the evolution of a new consumer mindset. It is a cultural evolution, it does not happen from one day to the other'.

One of the few truly digital winners of the second FeBA event was affiliated to the first literary publisher in Europe working almost exclusively with the new digital technologies (Internet, eBooks and Print on demand): *éditions 00h00*.

com (short: “Zero Heure”) in Paris.⁶ This was one of the exceptional cases of a start-up where a reputable individual did quit a reputable traditional publishing house to launch a start-up using the new technologies: Jean Pierre Arbon. *00h00.com* had been launched by the former Managing Director of the well-known literary publishing house *Flammarion*. Since the foundation of Zero Heure in May 1998, his reputation was an important factor in accruing venture capital for the start-up. The business concept of *00h00.com* was that readers connect to the web site, where they could purchase a book and choose between different formats. They could either download a digital copy of a text to be read on an eBook or other electronic reading device, or order a hard copy of a book, already published traditionally, which was then taken from the original publishers’ stock. Traditionally published books, which were out of print, as well as their own publications, *00h00.com* printed on request using print-on-demand technology. *00h00.com* was build up to be bought, which became reality in autumn 2000, when it was acquired by Gemstar eBooks, one of the most serious competitors of Microsoft in the eBook reading device business.

‘What interests us is how electronic publishing allows for new content,’ Arbon said. An example of their commitment to new ways of writing was their *2003 series*, which contained innovative texts conceived and written specifically for digital media. These texts made use of all the possibilities that hypertext, interactivity and multimedia have to offer for the creation of new reading experiences. In this context, the interviewees mentioned the hyper-novel *Apparitions inquiétantes* by Anne-Cécile Brandenbourger as a good example of the style of their original publication list. In the case of hypernovels the digitizing of text became a distinctive stylistic element in the literary creation process. As another example, they referred to a collection of texts about the ‘Revolution of Writing’ which was planned, written and published within less than three weeks in spring 1999. Apart from on the web, the collection of texts was also on sale at the *Forum de L’Ecrit* in the Odéon Theater in Paris.

Facilitating individual novelty-seeking and novelty-creation was not only a marker of Zero Heure’s contents, but also its marketing activities. New book releases were for instance supported with ‘literary clips’ presented on the Internet. For these videoclips *00h00.com* collaborated with promising young directors who were at the beginning of their careers. This was a comparatively cheap web alternative to other forms of advertising. *00h00.com*’s business concept built on a process in which traditional publishing was nourished while experimenting with the new technologies. About 70 percent of *00h00.com*’s list fell under the category ‘Belle-lettres’ and about 12 percent⁷ of the whole list were original

publications. It was in this latter part, where Jean-Pierre Arbon had wanted to design *Editions 00h00.com* as a *Maison d'édition* in the French tradition: a house, which cultivated new authors and took the risk to publish their work. These original publications formed the culturally oriented side of the business.

In order to get access to the traditional circuits of social judgment, *00h00.com* collaborated with traditional players in the publishing industry, whose products they sought to bring out in new digital formats. This also explains why, compared to the rather restricted programs of conventional literary publishers of a comparable size, *00h00.com* was able to publish at least one book a day, covering a wide range of genres from novels, poetry, plays, film screen plays, science fiction, non-fiction to educational and university textbooks. The majority of these texts were under copyright, for which online distribution agreements had been signed with reputable literary publishing houses in France, among others *Le Seuil*, *Gallimard* and *Flammarion*. *00h00.com* exploited the particularities of online publishing in order to offer these houses a complementary approach to traditional publishing. In autumn 2000, *00h00.com* had even started to co-publish some of its own originals simultaneously with the traditional paper publishers.

The interviewees reported that at some points since the foundation of *00h00.com*, the use of new technologies had been an obstacle to building up good literary content and being recognized in the circles of literary critics for the innovative literature they published. As one of the main problems they recognized that the publicity they received for the technological side of their operations completely distracted the public from *00h00.com*'s contents. Unlike the large publishing conglomerates, who were now gradually getting into the digital business, *00h00.com* had to break a lot of technological ground and work out the right solutions for themselves. Another comment they made was that high literary quality was usually not expected and searched for in the web. 'Digital content still needs to overcome an inferiority complex, as paperbacks did 50 years ago', Arbon says. To further this aim, the firm published classics by Flaubert, Molière, Hugo and Balzac. However, despite the problems with the literary reputation, further investments, the interviewees said, would not be channeled into the editorial department, but directly into R&D on digital formats, data handling and techniques, where they saw their future in using eBook technology rather than print on demand. The fight for recognition in literary circles as well as the continuous profitability problem have not only been phenomena of the start-up's early phase. Even in October 2001, more than 3 years after the foundation of *00h00.com*, the Managing Director's reaction towards questions on the firm's future was concise, but forthright: 'It is hard.' The eBook award campaign for the

time being must be evaluated as having cost the firms a lot of money, but failed. The existence of the eBook award has become history after its last celebration in October 2002. Hermann Salmen, Managing Director Gemstar Germany commented this sudden end: ‘The time seems not to be ripe yet for eBooks’. The Frankfurt eBook Award has been cancelled since 2003. The technology is generally agreed to not have “taken off”. Some firms have cancelled or reduced their R&D efforts on this new technology and big players like Microsoft continue working on it. It is highly likely that we will witness another attempt to introduce eBooks in the near future.

6.4 THE LITERARY ARTS AS A FIELD FOR QUANTITATIVE RESEARCH ON SUPPORT TO THE NOVELTY GENERATION PROCESS

This chapter was meant to make the reader familiar with the more practical aspects of the social judgment and support processes in the novelty-seeking professions, in particular in the empirical field in which the large-scale quantitative study presented in chapter six has been conducted: The literary arts and publishing. The above case told the story about the famous crime writer Ed McBain who received a large amount of instrumental support (award money) in exchange for agreeing to act as the ‘winner’ in a ‘literary award’ event actually supporting something else than literary aims: a new technology in the literary field. The choice for such an extraordinary award to be presented in this case was made because its obvious exploitation of status transfer illustrates the nature of social judgment processes in award events even more drastically than ordinary literary awards.

In this chapter also the importance of the link between the innovative performance of an individual and the reputation of his/her organizational affiliation with respect to innovative performance has been illustrated. This will be an important aspect in the methodology used for the quantitative study presented in the following chapter. Furthermore, the relevance of stereotypes was discussed with respect to this particular empirical field. Neither the effects of grants and awards on the novelty generation process, nor the stereotypes influential in the context of award and grant events have been covered by quantitative research before. The following chapter will close this gap.

FOOTNOTES

¹ Data for this case were collected during the years 2000 to 2003 (The time period in which this award was conferred). Part of the data about the newly established award originates from press releases around the event, other archive material and data from discussion forums established in web communities such as *digitalworm.com*. The other part has been gathered by means of interviews with people directly involved in the award procedures: the chairman of the International eBook foundation and one of the award winners. Furthermore, interviews were conducted with the Managing Director of the German Division of *Gemstar eBooks*. For an overview of the interviewees see Table 6.1 in Appendix C₁.

² IeBAF press release, New York, NY, 20 October 2000

³ quoted in The Guardian, Oct 6, Op.cit.

⁴ Data results from search conducted in Web Communities such as *digitalworm.com* where e-mail discussion forums publish correspondence between people from the general public about the award event.

⁵ idem

⁶ Semi-structured interviews were conducted with employees from the editorial department, the marketing department, the Webmaster and the Managing Director. For details: Table 5.1 Appendix C₂.

⁷ Figures from July 2000.

CHAPTER SEVEN

AWARDS, GRANTS AND INNOVATIVE PERFORMANCE IN LITERARY PUBLISHING: AN EMPIRICAL STUDY

7.1 INTRODUCTION

In this chapter a range of hypotheses will be tested concerning the effects of awards and grants on the performance of individuals in three dimensions: innovative performance, productivity and proliferation performance. Also, factors interacting with these relationships, such as gender, maturity and organizational affiliation of the individual will be explored. The hypotheses are tested using both cross-sectional and longitudinal data. Figure 7.1 highlights the components of the theoretical model explored in this study. In Figure 7.2 the empirical model is shown which will be tested here. This figure includes the numbering of the hypotheses generated in the theoretical chapters. In the following these hypotheses are repeated for the comfort of the reader.

Two thematic groups of hypotheses will be tested here. The first group concerns the basic characteristics of different types of awards and grants as forms of impersonal social support and their effects on the performance of the individual receiver (Chapter Three). A second group of hypotheses addresses factors interacting with the relationship between impersonal support measures and the performance of the receiver, specifically negative stereotypes referring to the gender, the maturity and the organizational affiliation of the support receivers (Chapter Four):

Group 1 (presented in chapter three):

- H3.1 *Awards and grants conferred by expert juries are more likely to support the innovative performance of the receiver than juries consisting of sponsors.*
- H3.2 *Awards and grants proceedings via application are more likely to support the innovative performance of the receiver than proceedings via nomination.*
- H3.3 *Honorary Awards are unlikely to support an increase in the innovative performance of the receiver.*
- H3.4 *Grants are more likely to support the winner's innovative performance than stimulation awards.*
- H3.5 *Promotional awards do not affect the innovative performance of the award winner.*
- H3.6 *Honorary awards are likely to lead to an increase in the proliferation of the award winner's previously produced work.*

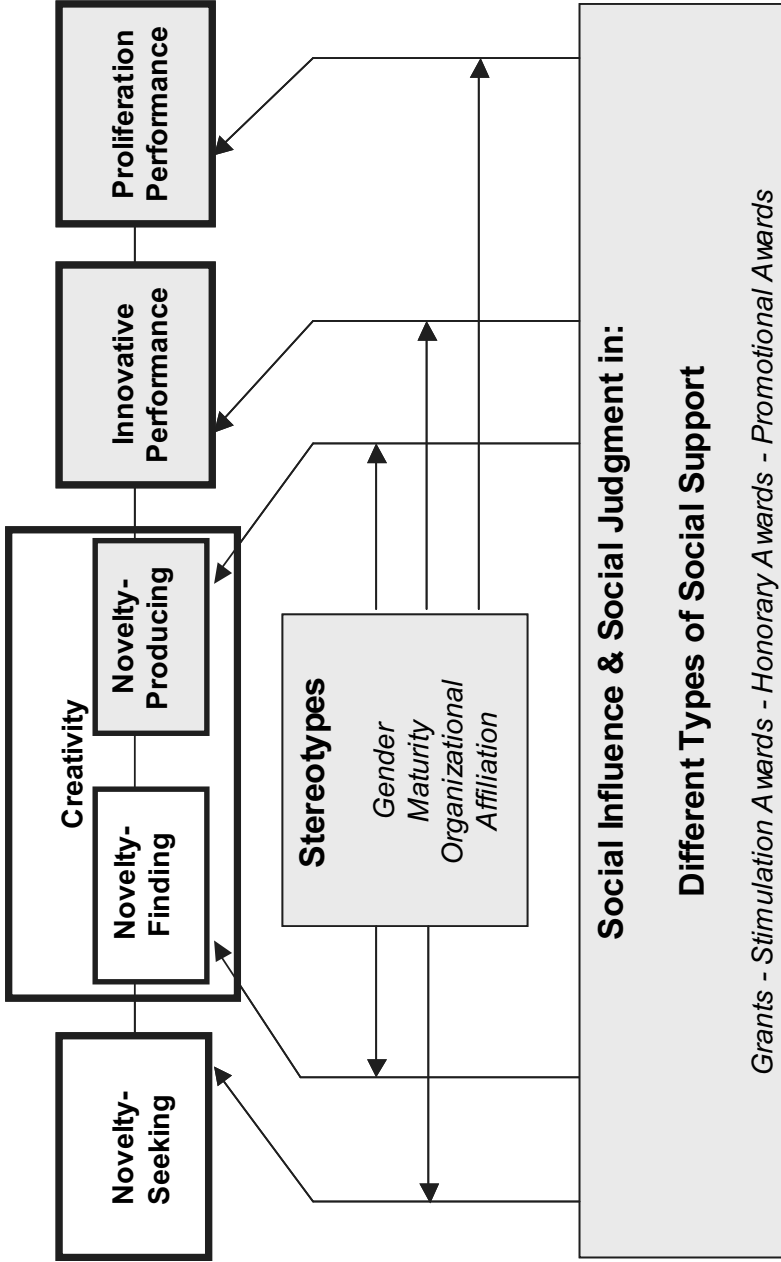
Group 2 (presented in chapter four):

- H4.1 *Members of negatively stereotyped groups are less likely than positively stereotyped groups to succeed in grant and award procedures in the field affected by the stereotype.*
- H4.2 *Members of a negatively stereotyped group are more likely to participate in grant and award procedures involving application rather than nomination procedures in the field affected by the stereotype.*
- H4.3 *Members of a positively stereotyped group are more likely to participate in grant and award procedures involving nomination rather than application procedures in the field affected by the stereotype.*
- H4.4 *Members of a negatively stereotyped group are likely to receive less validation support than members of the positively stereotyped group in a field in which the stereotype is officially condemned but still has an effect.*

- H4.5 *Members of a negatively stereotyped group are likely to receive equal instrumental support as members of the positively stereotyped group in a field in which the stereotype is officially condemned but still has an effect.*
- H4.6 *Members of a negatively stereotyped group are likely to receive less honorary awards than the members of a positively stereotyped group in the field affected by the stereotype.*
- H4.7 *Members of a negatively stereotyped group are less likely to transform instrumental social support into innovative performance than the members of the positively stereotyped group in the field affected by the stereotype.*
- H4.8 *Members of a negatively stereotyped group are less likely to transform a grant into an increase in innovative performance than the members of a positively stereotyped group.*
- H4.9 *Members of a negatively stereotyped group are less likely to transform a grant into an increase in productivity than the members of a positively stereotyped group.*
- H4.10 *The more mature an individual the less likely an honorary award will represent a social recognition for this individual's innovative performance.*
- H4.11 *Large organizations are likely to be attributed a lower innovative performance than small organizations.*
- H4.12 *Individuals in the novelty-seeking professions affiliated to larger organizations are less likely to receive grants and awards than individuals affiliated to smaller organizations.*

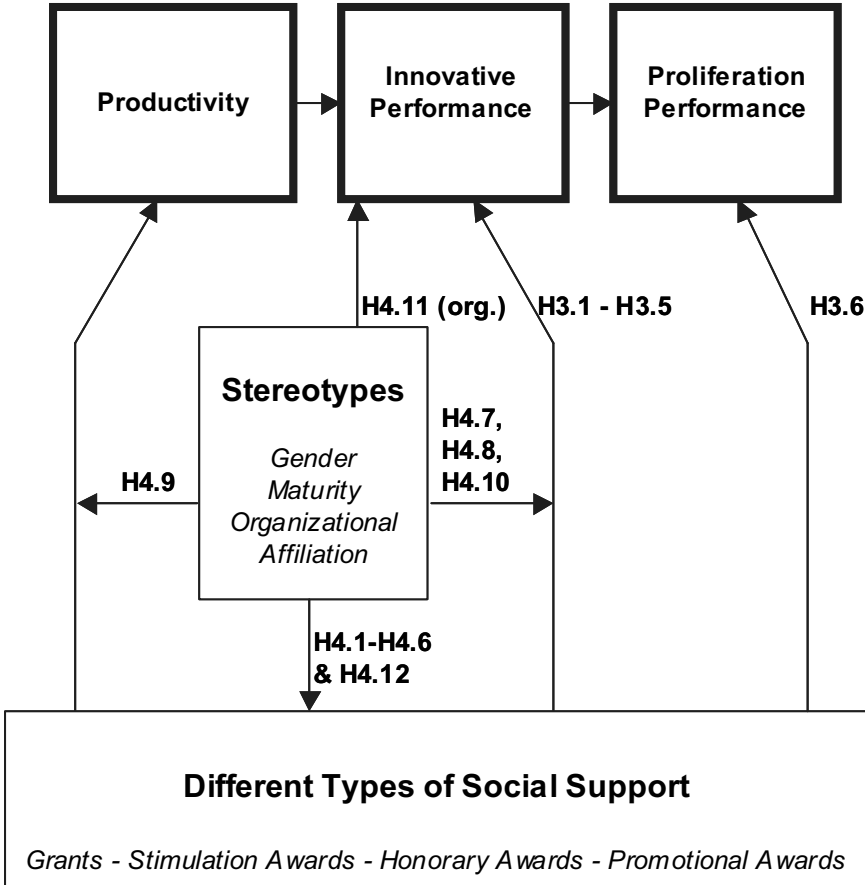
In the following, the method of analysis will be described for the cross-sectional and the longitudinal studies performed at both the individual as well as the organizational level (section 7.2). Then the results on the award characteristics will be presented (7.3.1) followed by the findings from a comparison between male and female award & grant winners (7.3.2). Next, the results of the longitudinal (7.3.3) as well as cross-sectional regression analyses (7.3.4-7.3.5) will be presented.

Figure 7.1 Focus of the Empirical Study



Note. The shaded parts of this model will be part of the empirical analysis.

Figure 7.2 The Empirical Model
(including the numbers of the hypotheses tested in this study)



7.2 THE METHOD

This section describes the sample, data and procedure as well as the individual and organizational measures used in this study. The second section reports how the data have been analyzed.

7.2.1 SAMPLE, DATA AND PROCEDURE

Data have been collected on all literary writers ($N = 1328$) officially recorded to have won awards or to have received grants during the years 1993-2001 in Austria, Switzerland and Germany. Literary publishing belongs to the artistic novelty-seeking professions and is therefore very suitable to test the hypotheses. Apart from that, literary publishing is a highly neglected industry when it comes to large-scale quantitative research. For establishing a sample that is as large and homogenous as possible, the German speaking publishing area is the best choice in Europe, since this area comprises three European countries: Austria, Germany and Switzerland which all participate in the sample of grants and awards used in this study. The choice for Europe was motivated by the fact that quantitative research existing on the publishing industry mainly refers to the US (though not on the issue of innovative performance, let alone in the context of literary awards). The European publishing industries have been neglected in international research outlets.

Four main data sources were used for this study: data from a questionnaire, and three archival data sources. First, Austrian, German and Swiss literary publishers have been asked to complete a questionnaire, amongst others in order to generate multi-rater data on the innovative performance of the 1327 individuals. The selection of this jury consisting of publishers was based on the list of publishers provided in the 'Handbuch für Autoren', an established German advice guide for writers. It contains a standard list of literary publishers to which manuscripts can be submitted. The respondents then constituted a jury composed of 41 literary publishers judging the innovative performance of the award-winning authors at the end of the chosen period of award and grant conferrals, that is in 2000/2001 (for a list of the participants in the jury see Appendix D₁). The response rate was 38%, which could only be obtained by personally administering the questionnaire to the publishers in the three countries. The survey was piloted with 5 publishers in Switzerland who suggested a small number of modifications. However, these modifications did not relate to the items that were finally used in this data

analysis, which meant that these test-run questionnaires could also be included in the analysis.

The second data source contains data on impersonal social support: archival records containing information on grants, awards and their winners published in the widely recognized compendium 'Handbuch für Kulturpreise' (HfK) (1996-2001). These data specify the year in which the awards and grants were conferred to an individual within the period that the compendium covers (1996-2001, in exceptional cases even starting from 1994). Also a short description of the objective of each single award/grant is contained, as well as information on variables like founding year of the award, application/nomination procedures, jury type, target group, an importance index for each award and information about the type of award. As the information on the type of award was inconsistent in the HfK, the theoretical distinction between grants, stimulation awards, honorary awards and promotional awards suggested in chapter three has been applied to the HfK by way of a content analysis of all the award descriptions it contains. A detailed description of this content analysis is presented in Appendix A. To build the databases required for this study, the electronic file underlying the HfK was obtained. A key drawback of the HfK is that it neither provides information about the award-related publications, nor about the affiliations of the award or grant-winning individuals to publishing houses. This is arguably the case, because many awards and grants are not related to one particular ISBN numbered book, but to as yet unpublished projects or whole oeuvres of authors.

So, the HfK data were supplemented by using a third data source on publication and affiliation information of the awarded individuals, the 'Deutsche Nationalbibliographie' (DNB, CD-ROM Editions 1992-1996 & 1997-2001). The DNB is the most comprehensive electronic archive available to obtain data on all publications (including information on publication year, ISBN, title and genre) of the award winners in the German-speaking publishing area (ISBN-code starting with 3-) in the time period 1992-2001. For those award/grant winners holding zero publication records in the DNB, it was assumed that they had zero publications.

Due to the nature of the DNB CD-ROM, the information had to be exported case by case for the 1328 individuals who had a total of 9574 new titles published (after duplicates had been excluded) plus 2763 proliferation publications of these titles (that is further editions of these titles with other ISBN number), thus in total 12337 publications processed in this data collection procedure. The publication information also had to be exported item by item (title, ISBN, year, genre, publisher) due to the DNB data set-up. In order to avoid errors in this

time-intensive process of generating the databases, copy and paste technique was adopted between the data sources and the created databases. Also, by carefully comparing the names of the winners provided in the HfK and the DNB author lists as well as uncovering minor spelling differences, potential errors could be avoided when cases delivered zero hits in the DNB. This was done to avoid assigning a zero publication record due to spelling mistakes. Also in the copy and paste process continuous cross-checking with the book version of the HfK was performed in order to avoid mistakes. In the publication database, duplicate publications with same ISBN number were deleted. They could occur for instance when several further print runs of the same publication in other years were produced. This information was of no value since there was no information available on the size of these respective print runs.

For the organizational hypotheses, data on organizational size and financial status were drawn from a fourth database, the Marcus DVD issued by European Creditreform. Most German literary publishers are not obliged to report their figures to the Chamber of Commerce in Germany. This makes it difficult to obtain data on these organizations. The European Creditreform Marcus-DVD was the best possible database to be found, though still delivering far from complete data.

On the basis of the four data sources (Survey, HfK & DNB, Marcus) four databases were created for the different levels of analysis: individual level, organizational level, publication level and award level respectively. On the basis of these databases the variables for the working databases were computed.

As concerns the time factor in this research, two time windows were handled: first, the one determined by the data available on award events: 1996-2001 and, second the time window for which data on the publication and affiliation records of the winners were used: 1993-2001. The second time window is wider than the first, which is essential given the event character of the awards and the comparisons of before and after performance.

7.2.2 INDIVIDUAL AND ORGANIZATIONAL MEASURES

Individual Measures:

Innovative Performance. Innovative performance has been identified as a social psychological construct in this study and its definition presented in chapter two has clear methodological implications. Innovative performance has been defined as something that is judged as novel by others. Multiple-rater methods (Anderson, De Dreu, & Nijstad, 2004) correspond best with such a definition. This, in fact, means measuring an individual's 'reputation for innovativeness' or that of the organization he or she is affiliated to.

In this study the multi-rater method has been realized by means of a questionnaire personally administered to a jury of 41 literary publishers responding to the following item: Please name three publishers (excluding your own publishing house) that you consider as the most original/ avant-garde in your industry? Using a peer jury instead of individual expert judges not operating in literary publishing themselves can be argued to result in far more objective accounts. Instead of having each of the 1348 authors rated individually, an aggregate evaluation of the authors was chosen, that is the use of data on the innovativeness reputation of the authors' organizational affiliations as a proxy for individual reputation. In industrial and organizational psychology the use of collective constructs is common practice (Hofmann, 2002). This choice is theoretically supported by the theory on reputation transfer between the organizational and the individual level discussed in chapter four. The argument is that a publishing house is only as good as its authors, which is to say that vice versa information about the reputation of the publisher also provides information about the individual's performance. This was also confirmed in the process of the personal questionnaire administration: the jury members, when thinking (often aloud) about the answer to this questionnaire item, talked about specific authors they had heard of as affiliated to particular publishing houses. In sum, individual innovative performance is thus operationalized here as a summary measure of the reputation (for publishing original/novel contents) of those publishing houses who have selected and contracted this individual within a defined time period.

The innovative performance ranking of the organizations has been computed by counting the nominations each of the organizations received by the jury. The outcome of this ranking procedure is presented in Appendix D₂. As a next step, individual innovative performance was derived from this ranking by computing a summary measure of all the affiliations and individual has had in a given time

period (before or after an award/ grant, or in total). Here a decision had to be made whether to use the sum, the average or the maximum of their affiliations' scores. The choice was made to use the average of the ranking scores of the different affiliations, in order to avoid maturity or productivity effects on the innovative performance measure. Individuals who were affiliated to neither of the publishers nominated in the innovative sample were assigned the value 0, whereas individuals, who did not have an affiliation at all, were assigned the performance value -1 . The reason for assigning this value here is that individuals who have not been able to find a publisher for their work were rated as having an even lower performance than those who have found a publisher. Had this value not been assigned to non-published authors, valuable data would have been lost as missing values for performance. Even if they had achieved a performance increase after an award or grant, these cases would not have been included in the before and after analyses due to the missing value before the event. In this way, especially data on beginning authors would have been excluded from the analyses. Since they constitute a very important part of the sample, assigning the -1 value was the best (although maybe not the most elegant) solution to the missing value problem.

For the cross-sectional study the average of nomination scores of the affiliation during the total measured time period was taken as the measure for total innovative performance of the individual. For the longitudinal design average innovative performance before an award/ grant was compared to average innovative performance after an award/ grant in order to detect changes in the individual's innovative performance.

Productivity (Novelty-Producing Component of Creativity). The so-called CAQ (Creative Achievement Questionnaire) that has been developed to measure lifetime creative accomplishment in the fields of art and science, includes the item "My work has won a prize or prizes at a juried art show" (Carson, Peterson, & Higgins, 2003). In this specific sense, it can be assumed that the 1327 awarded writers included in this sample's study are creative and that what they produce and publish is the outcome of a creative act. On this basic assumption of a creative sample of award winners, it could be justified to operationalize a change in the novelty-producing component of creativity in the theoretical model as a change in the sum of newly produced titles before and after an award or grant event, clearly distinguishing this from proliferation. Both, in turn, are different from the count of the total of publications that was used here to indicate the professional maturity of an individual (explained below). Productivity was handled here as a relative rather than an absolute measure: 'Change in productivity' is a change

in the number of newly produced work as opposed to changes in the number of reprints and later editions, which constitute proliferation.

Proliferation Performance. This variable describes the degree to which an author's works have reached a wider audience. Two alternative measures were used: A count of proliferation publications and a multi-rater ranking of the authors mass publisher affiliations. For the first measure, proliferation publications were counted carrying the same titles as an original publication but distinguished from it by ISBN and/or year. This is the number of books re-published in another edition of a previously produced work in a given period of time within the Bibliographic Records (DNB). This was then computed as in the sum before and the sum after an award or grant event. The second proliferation measure has been realized similarly to the innovative performance measure within the questionnaire administered to the jury of 41 literary publishers responding to the following item: Which are the publishers with the highest mass-market reach in your industry? Again, a ranking was generated on the basis of the number of nominations made by the jury. As a second step, the individual's proliferation performance was computed as the average of the mass market scores of the publishers to which the individual was affiliated in a given time period.

Impersonal Social Support. This variable captures the amount of support received by the individual from impersonal sources in the form of different types of awards and grants conferred to this individual. Data on grants and awards received by individuals does not require the use of surveys, but can be obtained from archives available in the field. Archival documents describe the activities of individual actors, institutions, governments and other groups (Webb, Campbell, Schwartz, Sechrest, & Grove, 1981). This unobtrusive method via archival data observes people's behavior indirectly through records. The archival records published in the German 'Handbuch für Kulturpreise' (HfK) served as a basis for this study. From a methodological point of view it is an advantage that the researcher does not intervene in such a method, that is, the method is non-reactive (Webb et al., 1981). The grants and awards collected in the HfK represent interventions in the population of German literary writers and poets and are running records. The whole sample of awards in the literary awards section of the HfK served as a point of departure. Included in the analyses and identified by the content analysis described in the procedure section above were the following impersonal social support types: Grants, Stimulation Awards, Honorary Awards and Promotional Awards. 148 of the awards listed in the HfK were excluded from the analysis, either because no award winners were listed or because they were not conferred to the original producers of works (which are

at the center of this study) such as is the case with translation awards, awards to critics and awards to other supporters of literary production. Finally, the very few awards conferred to publishers or other organizations instead of individuals were separated from the individual-directed awards.

Instrumental Impersonal Support. This is a sub-variable of social impersonal support, which captures the financial support received in award/grant events.

Validational Impersonal Support. This is another sub-variable of social impersonal support, which was operationalized as the public importance assigned to the awards or grants. The HfK included a so-called ‘award importance index’ based on data on a) ‘material and organizational conditions of the award’; b) ‘supra-regional publicity of the award’; c) ‘prestige of the award’ (see Appendix B for details on the weightings of these variables in the computation of this award importance index).

Gender. It was in some cases difficult to find female award winners documented in the German ‘Handbuch für Kulturpreise’ (HfK) under the same name in the Deutsche Nationalbibliographie 1993-2001 (DNB), since some may for instance have had surnames changed into a double surname due to marriage. Keeping the same name is an essential requirement for the process of building up innovative performance in a field, when publication records are an important measure. 108 female award winners (that is 28.1%) scored zero publications in the DNB and it could not be determined what percentage of this outcome was due to disruptive name events. In the male sample of award winners slightly less (28%) scored zero publications. Scoring zero publications in the DNB also refers to grant-winning authors at the start of their carriers who do not yet have a publication record.

Professional maturity. Professional maturity has been operationalized as the total number of books published in the given period of time within the Bibliographic Records of the German Publishers association that is the *Deutsche Nationalbibliographie* 1993-2001 (DNB). This research represents a cross-section of 7 years in the history of German Literary publishing, from 1993 till 2001, which also means that the earlier innovative performance of a writer which is now established and honored, but not considered innovative anymore, does not figure in these data. How innovative a writer like Günter Grass is in the chosen time period is the question to be answered in this work and not how innovative he used to be.

Organizational Measures (only included in the two organizational level hypotheses):

Organizational Innovative Performance. Various innovation performance indicators have been discussed in the literature. One of them is R&D expenditures (Kleinknecht & Bain, 1993). In terms of the Novelty Generation Model (NGM in Chapter Two), it can be argued that these measures only capture the input into novelty-finding and producing activities, but not the output and the actual innovative performance it achieves. Patents are a far better indicator of innovative performance. However, in novelty-seeking professions like art and science, in which intellectual property and service aspects are central other indicators are needed. There is a clear lack of innovation output indicators. A row of alternative innovation output indicators are offered for service settings, among them the suggestion to track the sales of imitative versus innovative products, which result in positive cash flow measured by means of surveys (Kleinknecht & Bain, 1993). However, here it must be criticized that such measures are more likely to capture financial/ commercial performance of products rather than their innovative performance. The same problem holds for using the number of new product announcements made in particular trade and technical journals as a measure of innovative performance. The company may of course announce something as new, however from a social psychological perspective (chapter two) the innovation mechanism includes the social judgment not reflected in such product announcements. Therefore the method of mutual ratings of publishers has been chosen (for detailed description see above ‘Individual Innovative Performance’).

Mass Performance. Obtained in multi-rater procedure: Performance of publishers with respect to reaching mass-markets with the products they publish.

Balance Performance. Obtained in multi-rater procedure: Performance of publishers with respect to balancing mass-markets operations and innovative performance with the products they publish.

Size of organization. Data on Number of Employees obtained from the Marcus DVD issued by European Creditreform.

Financial Power. Capitalization data obtained from the Marcus Database. However, these are extremely thin data since only very few of the companies in the sample are public companies.

7.2.3 DATA ANALYSIS

To test the hypotheses postulated in chapters three and four, I mainly relied on Analysis of Variance (ANOVA) and Hierarchical regression analyses. The ANOVA tests were used to compare male with female authors- instead of t-tests in order to facilitate the comparison with other analyses though complemented by Cohen D statistics. The regression analyses were used to test how the various kinds of performance of interest in this study were explained by the different social support measures. Longitudinal design was adopted to uncover patterns before and after an award or grant event at a single point in time (a design similar to event studies used in other disciplines like economics and medicine). A cross-sectional design was adopted to uncover relationships for the whole time period. In both designs, the use of hierarchical regressions allowed for observing how much variables accounted for the variance in the different kinds of performance during different time periods. Since the hypotheses also involved interactions, the use of hierarchical regression also allowed for examining how much they explained beyond the main effects.

Cook D statistics and standardized residuals were used to check for outliers. No influential observations have been found. Multicollinearity was checked for by analyzing tolerances and partial correlations, but was not considered material. To prevent multicollinearity from appearing in the regressions as a result of the interaction effects, I first centered the variables before the interaction terms were computed (Aiken & West, 1991). The results of the analyses are presented in the following sections.

7.3 RESULTS

7.3.1 FINDINGS ON DIFFERENT TYPES OF GRANTS/AWARDS AND OTHER AWARD CHARACTERISTICS ($N = 3189$ AWARD/GRANT EVENTS)

The validity of the different award and grant classifications was tested here as well as relationships between their characteristics, which served as a basis for the later analyses. Table 7.1 shows correlations between various award types and award characteristics for a number of 3189 awards and grants (see also Appendices A & B for a more detailed description of the award variables). The

Table 7.1. Intercorrelations Between Various Characteristics of Grant/Award Events (N= 3189 Award Events)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Financial reward of award/ grant	—													
2. Importance of award	.53***	—												
3. Honorary award type	.17***	.29***	—											
4. Stimulation award type	-.12***	-.10***	-.46***	—										
5. Grant	.02	-.05**	-.64***	-.14***	—									
6. Promotional award type	-.21***	-.35***	-.38***	-.08***	-.12***	—								
7. Jury: Experts	.05**	.01	-.17***	-.06**	.19***	.09***	—							
8. Jury: Mix experts and sponsors	.13***	.02	.14***	.03	-.13***	-.10***	-.77***	—						
9. Jury: Representatives of sponsors	-.26**	-.02	.06**	.03	-.08**	-.01	-.36**	-.30**	—					
10. Jury: Market	-.06***	-.06**	-.03	.10***	-.03	-.02	-.05**	-.05*	-.02	—				
11. Selection Type: Nomination	.27***	.36***	.44***	.00	-.43***	-.16***	-.08***	.09***	.01	-.04	—			
12. Selection Type: Application	-.22***	-.30***	-.49***	-.06**	.52***	.21***	.12***	.02	-.22***	.05**	-.76***	—		
13. Selection Type: Mix App./ Nom	-.10***	-.13***	.00	.08***	-.06**	-.04*	-.03	-.17***	.29***	-.02	-.45***	-.23***	—	
14. Innovation objective	-.03	-.03	-.15***	.28***	-.05**	-.04*	-.04*	-.05**	.14***	-.01	.05*	-.04*	-.01	—

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. two-tailed ($n_0 = 2117$; $n_1 = 290$; $n_2 = 528$; $n_3 = 204$)

results widely confirmed the different grant and award types conceptualized in chapter three as well as the key characteristics assigned to them.

There was a highly significant positive correlation between the financial reward attached to awards/grants and the public importance assigned to them ($r = .53, p = .00$). As for the different types, financial reward was also highly significantly related to the honorary award type ($r = .17; p = .00$), whereas a highly negative correlation with the stimulation award type ($r = -.12; p = .00$) and no significant correlation with grants were observed. This indicates that most financial resources and public attention are channeled into events in which writers are honored.

As for the jury types, high financial rewards were distributed by juries mixing experts with sponsors, followed by pure expert juries (both highly significant), while highly significant negative correlations existed between financial reward and juries consisting of other representatives of the sponsors or the were the market decided (for instance via sales figures). This indicated that the latter jury types confer a lower material value in the literary publishing field.

Concerning the selection procedures Nomination was positively significantly related to financial reward ($r = .27; p = .00$) while selection procedures allowing for application showed highly significant negative correlations with financial reward ($r = -.27; p = .00$). This seems to suggest that reaping the high financial benefits is not in the hand of the individual- that is it cannot be achieved by applying for it. It comes with honor and via nomination. Honorary awards were highly negatively correlated

with all other award types. This means that those who won honorary awards were very unlikely to win any of the other awards. With the public importance assigned to the award or grant, as could be expected, only honorary awards had a highly significant positive correlation ($r = .29; p = .00$) - all other types of awards had a negative ones: Stimulation awards ($r = -.10; p = .00$); grants ($r = -.05; p = .00$); promotional awards ($r = -.35; p = .00$). Among the jury types only the market type was related with award importance, in a highly negative correlation ($r = -.06; p = .00$). Among the selection types a similar picture presented itself as with the financial rewards: awards with nomination procedures were assigned the highest public importance, whereas the application forms were negatively related to award importance (see Table 7.1).

With respect to the jury composition an interesting difference between expert and non-expert juries such as sponsors was found. Interestingly, the honorary awards appeared to correlate negatively to pure expert juries ($r = -.17; p = .00$). Instead, highly positive correlations with mixed juries consisting of experts,

sponsors and other representatives of the sponsors were found. Stimulation was negatively related with expert juries, while grants were the only form of support with a highly positive correlation with expert juries, thus experts give grants, not sponsors. Experts were also highly related to promotional awards. The specificity of experts in this context will be discussed below.

The selection procedures also differed between the awards: honorary award showed a highly significant positive correlation with nomination ($r = .44$; $p = .00$) and the opposite for nomination ($r = -.49$; $p = .00$), while stimulation awards showed a significant mix between application and nomination and, finally, grants showed a high positive correlation with application procedures ($r = .52$; $p = .00$).

Among the total of grant/award events ($N = 3189$) there was only a small number of award events, which explicitly were designated to support novel, original initiative in the literary arts ($N = 85$) (see content analysis in Appendix One). They only constituted 1.8 percent of the total of events. For this specific sample results showed that they were not honorary awards, but stimulation awards ($r = .28$; $p = .00$), and negatively correlated with expert juries. Thus sponsors independent of the establishment rather than recognized experts supported the new. And, surprisingly: they were nomination awards. No correlation with the financial and public importance of these particular awards was found.

7.3.2 COMPARING MALE AND FEMALE PARTICIPANTS

An important observation to start out with is that 943 men and only 385 women were found to have qualified for the grants and awards in this study. This result is in line with the discussion of the barriers that female participants still face in the novelty-seeking professions. The following analysis, however, goes one step further and seeks to understand the differences between male writers and those female writers who have managed to pass the barriers and qualified for grants and awards. One-way ANOVAs were conducted to determine these differences. However, since ANOVA is known to overestimate sub-group differences due to different sample sizes in each sub-group, effect size statistics (Cohen's d) (Cohen, 1988; Rosenthal & Rosnow, 1991) were used as is usual in gender studies. Also, given the high N it is necessary to analyze not only for significance, but also for relevance. In the following, first the significance of the results will be discussed, then their relevance.

As illustrated in Table 7.2, men received significantly more honorary

awards than women ($F_{(1,1326)} = 7.84, p < .05$), whereas women received highly significantly more grants than men ($F_{(1,1326)} = 19.95, p < 0.01$). Also there was a significant difference between men and women in the innovative performance after having received a grant ($F_{(1,1326)} = 6.70, p < .05$), Men showed a significantly higher innovative performance after the reception of a grant, while there was no significant difference in innovative performance before the grant. The grants which were received by men had in average a significantly higher importance score than those won by women ($F_{(1,1326)} = 5.21, p < .05$). In comparison, the most important stimulation awards (maximum importance, instead of average in this measure) were won by women rather than men ($F_{(1,1326)} = 4.48, p < .05$).

Furthermore, men had significantly higher average of publications than women ($F_{(1,1326)} = 9.13, p < .05$). Interestingly, men and women did not differ in their proliferation performance (mass).

Interestingly, in the sum of financial resources granted to men and women participating in the award events there was no difference - in other words: the women who participated did not receive less instrumental support, only in the case of grants there was a difference significant at the 10% level ($F_{(1,1326)} = 2.92, p < .10$), while with validation support (public recognition for the award= award importance) men scored the most important grants.

Within the small sample of awards explicitly granted to writers with original novel ideas there was no significant difference between male and female writers.

An interesting result was found when partitioning the data with respect to different genres - compared to the Belles Lettres in which all the described differences between men and women could be stated, the picture looks very different when conducting the analyses only within the genre of children's literature. Compared to the above results, in the children's literature domain only two of the above differences remained: men still got more honorary awards than women ($F_{(1,176)} = 5.14, p < .05$), and the productivity after any kind of award or grant was lower in female than in male writers ($F_{(1,1326)} = 4.74, p < .05$). In contrast, in the Belles Lettres, the most prestigious genre in the literary tradition, men had a significantly stronger position with respect to the following aspects: they achieved a higher maturity, experienced a higher increase of innovative performance after an award/grant event, won the more important awards and grants (see Table 7.2).

So, how relevant are the above significant results? After having used Cohen's *d* statistics, it might be appropriate to add at least a cautionary note. Cohen's *d* for most of the non-significant comparisons was .1, some close to 0, while

Cohen's *d* indeed turns out as higher for a couple of the differences discussed as significant in the foregoing: the winning of grants ($d=-.3$), professional maturity ($d= .2$) and average innovative performance after a grant ($d= .3$), the sum of financial support in grants ($d= .2$), the average grant importance ($d= -.2$), the

Table 7.2. Analysis of Variance for Various Performance Measures (N=1328)

Variable	<u>Male (N=943)</u>		<u>Female (N=385)</u>		<i>p</i>	<i>F</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Total No. of Awards	1.30	.77	1.31	.73	.79	.07	0
No. of Stimulation Awards	.23	.45	.24	.47	.56	.35	0
No. of Honorary Awards	.72	.81	.59	.78	.01	7.84	.1
No. of Grants	.27	.53	.42	.60	.00	19.95	-.3
No. of Innovative Awards	.04	.20	.03	.17	.60	.27	.1
Professional Maturity	7.33	9.43	5.24	7.39	.01	9.13	.2
Avr. of IP	.69	1.70	.62	1.66	.48	.49	0
Avr of PP (affiliation measure)	.51	1.27	.47	1.15	.65	.20	0
Avr. IP after Hon. Awr.	1.12	2.34	1.02	2.18	.64	.22	0
Avr. IP after Stim. Awr.	1.03	2.48	.79	2.19	.45	.58	.1
Avr. IP after Grant	1.16	2.61	.55	1.36	.01	6.70	.3
Avr. IP before Grant	.39	1.67	.20	1.35	.25	1.34	.1
Sum of Financial Support	15034	18646	14505	16207	.63	.24	.1
Sum of Fin. Support (Hon. A.)	18170	22261	17622	21184	.79	.08	0
Sum of Fin. Support (Stim. A.)	12719	19907	14247	18182	.54	.38	-.1
Sum of Fin. Support (Grants)	21474	19917	18228	14064	.09	2.92	.2
Avr. Awr. Importance (Hon)	119.60	24.93	117.60	25.18	.37	.82	.1
Avr. Awr. Importance (Stim)	100.76	41.37	108.61	22.81	.10	2.74	.1
Avr. Awr. Importance (Grant)	110.95	26.44	104.60	25.67	.02	5.21	-.2
Max Awr Importance (Hon)	123.62	25.97	122.81	27.58	.73	.12	0
Max Awr Importance (Stim)	104.35	43.50	114.97	25.43	.04	4.48	-.3

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Max Awr Importance (Grant)	115.93	28.27	109.65	28.18	.04	4.38	.2
Productivity bef. Hon. award	6.31	7.04	5.43	7.18	.24	1.41	.1
Productivity after Hon. award	4.95	5.82	3.35	3.66	.01	7.45	.3
Productivity bef. Stim. Award	3.01	3.23	3.10	2.80	.90	.02	0
Productivity after Stim. Award	2.99	2.46	2.20	1.65	.06	3.66	.4
Productivity before Grant	3.49	3.44	2.38	2.15	.02	5.26	.3
Productivity after Grant	3.58	3.16	2.49	3.59	.03	4.69	.3
PP bef. Hon. (publ. Measure)	1.14	2.31	1.18	2.94	.88	.02	.1
PP after Hon. award	2.29	4.10	1.95	3.24	.42	.65	.1
PP bef. Stim. (publ. Measure)	.28	.63	.14	.44	.27	1.25	.3
PP after Stim. award	.72	1.32	.73	1.42	.96	.00	0
PP bef. Grant (publ. Measure)	.25	.57	.16	.45	.29	1.12	.2
PP after Grant (publ. Measure)	.79	1.62	.77	1.22	.91	.01	0

Note. IP = Innovative Performance; PP = Proliferation Performance; * $p < .05$. ** $p < .01$. *** $p < .001$. Negative values in Cohen's d are the result of female means being higher than the male.

maximum stimulation award importance ($d = -.3$), maximum grant importance ($d = .2$), productivity after an honorary award ($d = .3$), as well as productivity before and after a grant (both $d = .3$).

Those Cohen d values suggest that there is indeed an effect size worth to be mentioned for most of the significant results, but not for all: Most importantly the difference in the number of honorary awards received by men and women may be significant, but did not turn out to be relevant ($p = .01$; $d = .1$). In contrast, the difference in the number of grants and the innovative performance after receiving them was significant and relevant at the same time. However, when looking at these results it should be kept in mind that it was more than twice as many men than women who managed to qualify for the grants and awards events in the first place and also that there were twice as many honorary awards than grants conferred with the events included in this study.

Figure 7.3 Changes in Innovative Performance after Receiving a Grant - Women and Men

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender of the author	—												
2. Maturity of the author	-.10**	—											
3. Total number of awards won	.01	.23***	—										
4. Average award importance	-.04	.03	.12***	—									
5. Number of innov. Awards won	-.01	.03	.13***	.01	—								
6. Number of honorary awards won	-.08**	.36***	.62***	.27***	.04	—							
7. Number of stimulation awards won	.02	-.14***	.21***	-.11***	.20***	-.27***	—						
8. Number of Grants won	.12***	-.12***	.29***	-.03	-.04	-.32***	-.10***	—					
9. Number of Prom. Awar won	-.03	.07*	-.01	-.24***	-.02	-.17***	-.09**	-.13***	—				
10. Average Innovative Performance	-.02	.03	.16***	.11***	.06*	.11***	.04	.05	-.07**	—			
11. Average Proliferation Performance	-.01	.11***	.06*	.01	.06*	.09**	-.02	-.02	-.02	.09**	—		
12. IP before Main Award	-.04	.13***	.16***	.11***	.07*	.21***	-.01	-.05	-.07*	.66***	.07*	—	
13. IP after Main Award	-.05	.08**	.21***	.13***	.09**	.17***	.05*	.04	-.07**	.90***	.08**	.63***	—

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. two-tailed ($n_{\text{male}} = 943$; $n_{\text{female}} = 385$)

Table 7.4c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual’s Change in Innovative Performance (IP) after receiving main grant- Longitudinal Approach (N=1327)

Variable	Step1			Step2			Step3		
	β	T	p	β	T	p	β	T	p
Controls									
IP before main grant	.63	29.11	.00	.63	29.23	.00	.63	29.23	.00
Gender	-.03	-1.15	.25	-.03	-1.40	.16	.01	.26	.80
Maturity	.00	.09	.93	.01	.39	.70	.01	.42	.67
Main Effect									
Main grant				.05	2.11	.04	.09	3.24	.00
Interaction Effect									
Gend. * Grant							-.08	-2.60	.01
R^2	.40								
ΔR^2				.002*			.003*		
F	288.69			218.20			176.66		
p	.00			.00			.00		
df	3, 1324			4, 1323			5, 1322		

Note. Mean individual innovative performance (IP) after receiving main grant; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

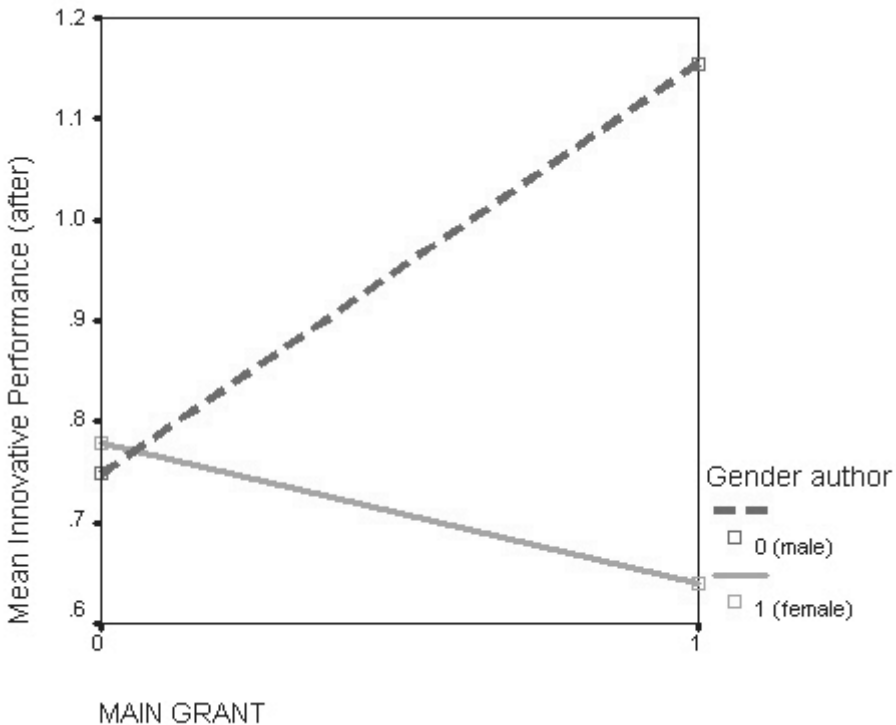
7.3.3 GRANTS AND AWARDS PREDICTING CHANGES IN INDIVIDUAL PERFORMANCE - LONGITUDINAL DESIGN (TABLES 4-8, APPENDIX C) -

Separate regression analyses with respect to the three alternative performance measures were conducted to assess which variables predicted innovative performance, productivity and proliferation performance. Two approaches were compared here: cross-sectional analyses and a longitudinal approach. The cross-sectional analyses have been conducted with the total innovative performance variable, whereas changes in innovative performance before and after an award or grant event were sought to trace in the longitudinal analysis. This longitudinal approach was also used for exploring changes in the productivity

and proliferation performance of the individual after having received a grant or an award. Correlations for all the variables used in the regression analyses are presented in Table 7.3.

In the longitudinal approach, the most prestigious of each type of award or grant per individual in the chosen time period was selected (highest award importance). In this way interfering effects of more important award/ grant events surrounding the chosen award event could be avoided in those few cases in which individuals received more than one award in the given time period. The dependent variable ‘performance after an award’ was constructed as a continuous variable, keeping up the scores of the before variable, if there had been no changes in affiliation to the individual. There was no significant ΔR^2 to be observed when adding honorary awards ($p = .15$) and stimulation awards ($p = .17$) to the model, that is there were neither significant changes in innovative performance after the main honorary award nor after the main stimulation award (see Table 7.4a&b; Regression tables not containing significant results can be found in Appendix C). Both honorary

Figure 7.3 **Changes in Innovative Performance after Receiving a Grant - Women and Men**



and stimulation awards were not significant. In contrast, as illustrated in Table 6.4c below, grants appeared to increase innovative performance ($\beta = .09$; $p = .00$) with a significant ΔR^2 in step two ($p = .04$) as well as step three ($p = .01$) with a significant negative Gender*Grant interaction effect ($\beta = -.08$; $p = .01$).

This interaction effect suggested that males could profit from grants, whereas female authors could not. The effect of grants on innovative performance was negative for women (see Figure 7.3).

Productivity. Analyses concerning the productivity of the individuals were conducted by means of the longitudinal approach (see variable descriptions above about a change in Productivity as one component of a change in creativity, which is different from the total production indicating the professional maturity of the individual). The same before and after design was adopted as is in the innovative performance regression, though with ‘production after an event’ as dependent variable instead. The findings indicate that only grants influenced the individual’s productivity ($\beta = .01$), although the effect was only marginally significant. Still, grants explained an additional 9 percent in the variance of productivity (Table 7.7c in Appendix C). Honorary awards and stimulation awards were not significant.

Proliferation Performance. With respect to the individual’s performance with respect to proliferation performance (PP), the maturity of the individual was the only significant predictor ($\beta = .06$) and none of the types of awards or grants had any predictive power here ($R^2 = .21$; see Tables 7.5a-c & 7.6b in Appendix C). In addition, an alternative method was used to confirm these findings. Using the second measure for assessing the individual’s proliferation performance (before and after design with ‘proliferation after an event’ as dependent variable) it could be observed that grants and stimulation awards did not play a role here, while honorary awards had a positive effect ($\beta = .07$; $p = .05$), although the additional variance explained was only marginal (Table 7.8c in Appendix C).

For this longitudinal approach it is important to note that the whole time window of the available award data (1996-2001) and publication data (1993-2001) has been used. However, for the reason that an award won in 2001 would not have records in the post-award phase the analyses have also been run for a smaller time window (1995-1998). Interestingly, there was no significant difference in the results. This can be explained by the fact that also the award data of the years 2000 & 2001 were thinner (because closer to the publication date of the Award-Handbook) and therefore had less weight in the total N of the analysis comprising the full period.

7.3.4 GRANTS AND AWARDS PREDICTING INDIVIDUAL PERFORMANCE
- CROSS-SECTIONAL DESIGN (TABLES 9-11, APPENDIX C)-

In the cross-sectional approach, the average innovative performance score of the whole period 1993-2001 was used as a dependent variable. The results differ from the longitudinal findings, for instance because they indicate that innovative performance was significantly explained by honorary awards suggesting that innovative performance can proceed particular types of awards.

Innovative Performance. As can be seen from Table 7.9a below, the regression coefficients of Number of Honorary Awards ($\beta = .19; p = .01$), Number of Stimulation Awards ($\beta = .11; p = .03$), and Grants ($\beta = .13; p = .03$) in step two of the regression were significant main effects in explaining individual innovative performance after having controlled for all the award years. In step three, after another significant ΔR^2 ($p < .01$), a significant negative Maturity * Honorary Awards interaction effect ($\beta = -.11; p = .00$), turned the main effect of honorary awards insignificant in explaining the individual's innovative performance. It becomes clear why honorary and stimulation awards were significant in predicting innovative performance in the cross-sectional approach, while in the before and after scenario they were not: Honorary awards honored innovative performance after it had taken place and did not support it. This also fitted with the significant Maturity*Honorary Award interaction effect, which indicates that honorary awards received by individuals with higher maturity, were less likely to honor the innovative performance of these individuals, but other aspects of the writers' work. Furthermore this regression showed that the gender variable did not have a significant effect, neither as main effect, nor in interaction with other variables (see Tables 7.9a and 7.9b). In the third step, the honorary and stimulation awards lost their predictive power when the gender variables were added.

Proliferation Performance. In predicting the proliferation performance of the individual (see Table 7.10a below), the professional maturity ($\beta = .10; p = .00$) was highly significant and honorary awards ($\beta = .15; p = .05$) marginally significant. Though in step three of the regression a marginally significant Maturity * Honorary

Awards interaction effect ($\beta = -.07; p = .05$) made honorary awards more significant ($\beta = .30; p = .04$).

Table 7.9a Summary of Hierarchical Regression Analysis for Variables Predicting the Individual’s Innovative Performance (Cross-sectional) (N=1327)

Variable	Step1			Step2			Step3a		
	β	T	p	β	T	p	β	T	p
Controls									
No. of aw. per year	Years 1988-2001 included								
Main Effects									
Gender				-.02	-.82	.41	-.02	-.62	.54
Maturity				-.01	-.27	.78	.04	1.10	.27
No. Honorary Awards				.19	2.45	.01	.21	1.74	.08
No. Stimulation Awards				.11	2.19	.03	.17	1.79	.07
No. Grants				.13	2.23	.03	.25	2.54	.01
Interaction Effects									
Gend. * No. Hon. Aw.							.00	.03	.98
Gend. * No. Stim. Aw.							-.04	-.40	.69
Gend. * Grants							-.14	-1.55	.12
Maturity * Hon. Aw.							-.11	-3.22	.00
Maturity * Stim. Aw.							.05	1.46	.14
Maturity * Grants							-.05	-1.63	.10
R^2	.04								
ΔR^2	.04			.01			.01**		
F	4.22			3.38			3.28		
p	.00			.00			.00		
df	12, 1314			17, 1309			23, 1303		

Note. Mean individual innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.10a **Summary of Hierarchical Regression Analysis for Variables Predicting the Individual’s Proliferation Performance- cross-sectional approach (N=1327)**

Variable	Step1			Step2			Step3a		
	β	T	p	β	T	p	β	T	p
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender				.00	.06	.95	.00	.00	.99
Maturity				.10	3.26	.00	.14	3.72	.00
No. Honorary Awards				.15	1.96	.05	.30	2.07	.04
No. Stimulation Awards				.05	1.08	.28	.11	1.17	.24
No. Grants				.07	1.20	.23	.10	1.00	.61
Interaction Effects									
Gend. * No. Hon. Aw.							-.08	-.88	.38
Gend. * No. Stim. Aw.							-.04	-.40	.69
Gend. * Grants							.02	.22	.83
Maturity * Hon. Aw.							-.07	-1.93	.05
Maturity * Stim. Aw.							.05	1.51	.13
Maturity * Grants							-.02	-.57	.57
R^2		.01							
ΔR^2						.02**		.01	
F		1.13				2.0		1.83	
p		0.33				.01		.01	
df		12, 1314				17,1309		23, 1303	

Note. Mean individual proliferation performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

7.3.5 GRANTS AND AWARDS AS DEPENDENT VARIABLE: LOGISTIC REGRESSION ANALYSIS

Given the results of the cross-sectional analysis compared to the longitudinal results it is highly relevant to look at the results of analyses that treat the receiving of grants and awards as the dependent variable. Does innovative performance lead to grants and awards? The results presented in Table 7.11 show that innovative performance can predict receiving honorary awards. However, this is not the case for grants and stimulation awards. Also in other respects the results of the logistic regression are in line with the results presented in the foregoing: Women are less likely to win honorary awards ($B = -.31; p = .02$), and the more mature a writer is the more likely he or she is to win an honorary award ($B = .09; p = .00$). Also for grants the results of the logistic regression confirm the results of the previous analyses: Women are more likely to win grants ($B = .57; p = .00$) and the more mature a writer, the less likely he or she is to win a grant ($B = -.07; p = .00$). Also Stimulation Awards are less likely to be won by mature authors ($B = -.12; p = .00$).

Table 7.11 Summary of Logistic Regression Analysis for Variables Predicting the Individual’s Winning of Honorary Awards, Grants and Stimulation Awards (N=1328)

<i>Variable</i>	<i>Honorary Award</i>			<i>Grant</i>			<i>Stimulation Award</i>		
	<i>B</i>	<i>S.E.</i>	<i>p</i>	<i>B</i>	<i>S.E.</i>	<i>p</i>	<i>B</i>	<i>S.E.</i>	<i>p</i>
Constant	-.44	.08	.00	-.92	.09	.00	-.90	.10	.00
IP before main award	.16	.04	.00	-.08	.04	.06	.00	.04	.93
Gender	-.31	.13	.02	.57	.14	.00	-.16	.16	.32
Maturity	.09	.01	.00	-.07	.01	.00	-.12	.02	.00
<i>Chi- square (3)</i>	147.39			70.73			69.29		
<i>-2 log likelihood</i>	1693.25			1444.41			1246.92		
<i>Cox & Snell R Square</i>	.11			.05			.05		
<i>Nagelkerke R Square</i>	.14			.08			.08		
<i>N (Awards/Grants)</i>	653			342			261		
<i>% corrected class.</i>	66.00			74.2			80.3		

Note. Winning Main Honorary Awards, Grants, Stimulation Awards; based on a Wald Test with $df = 1$; IP= Innovative Performance.

653 Honorary Awards were won by the individuals in the database of which 332 (50%) were correctly predicted by the model. The overall correct classification was 66%. 342 grants were received of which 0 were correctly predicted by this model. The overall correct classification was 74.2 which is due to the tendency of the model to classify events as non-grants. Similarly, of the 261 Stimulation Awards also 0 were correctly predicted (with an overall correct classification of 80.3 which is also due to the tendency of the model to classify events as non-stimulation awards).

As a final note of caution related to the above individual level results on innovative performance a multi-level consideration could be added: one may state a problem in the fact that the operationalization of innovative performance might have as a result that the scores of the individuals belonging to the same publishers could be interdependent. There are general procedures established to estimate degrees of interdependence (Kenny & Judd, 1996). However, for this research design, none of the available procedures was appropriate, because many authors belong to more than one publisher and therefore the situation in this research is far more complex than in dyadic or group interdependent settings. The only possibility (according to Charles Judd) was then to calculate the correlation between an individuals' total innovativeness score and the innovativeness scores of only ONE of his/her affiliations (in this case the affiliation with the highest score was chosen). A correlation of .6 was found, which indicates- as could be expected- that there is a degree of interdependence. However, since this is not an established way of calculating interdependence it is also not established in what way the alpha would have to be adjusted given this correlation. .6 is also far from a complete correlation, so it might be the right conclusion (opted for here) to interpret the results with some more caution, bearing in mind that there is a certain degree of interdependence among authors affiliated to the same publishers.

7.3.6 FINDINGS CONCERNING ORGANIZATIONAL AFFILIATION

As discussed in chapters four and five it is very important for novelty-seeking individuals to choose the right kind organizational affiliation for the publication and proliferation of their work. Depending on what the individual seeks to achieve in his/her professional development, the organization has to have the adequate characteristics: In this study on the organizational level, it was investigated which characteristics would support individuals who would either

seek to achieve innovative performance or proliferation performance or both, and also would seek different types of support.

Table 7.12 below shows how various organizational characteristics relate to each other. Here it was observed that mass performance correlated positively with the size of the organization, whereas innovative performance did not. Having award/grant-winning affiliates correlated strongly to all performance types, however, regression analyses performed on this issue strongly modify the results. It is important to note here that for these organizational level analyses for theoretical reasons organizations were assessed according their link with their affiliates through publication of their original productions, not according to the proliferation they support for their affiliates. This means that only those affiliations to grant and award winning affiliates were included in the analysis, which satisfied the original production condition.

The regression analyses resulted in the following findings:

Organizational Innovative Performance. In a cross-sectional approach on the organizational level, as can be seen from Table 6.13a below, the regression coefficients of the Number of Honorary Awards ($\beta = -.64$; $p = .04$), Number of Stimulation Awards ($\beta = .72$; $p = .00$), and Grants ($\beta = .48$; $p = .00$) were significant main effects in explaining the organization's innovative performance in step two of the regression ($\Delta R^2 = .20$). Remarkable is the negative coefficient of honorary awards. As indicated above company information was difficult to obtain in the literary publishing industry- for this reason the sample for testing the organizational affiliation hypotheses was reduced to $N = 299$ in the regression analyses. Nevertheless, these results indicated that the jury had rated publishers with a high number of writers who received honorary awards as comparatively low on innovative performance, while they had rated publishers grant and stimulation award winning affiliates as high on innovative performance. This shows that a far higher percentage of organizational innovative performance was explained by grants and award winning affiliates ($\Delta R^2 = .24$), while on the individual level the winning of awards and grants only explained a few percent of the innovative performance of an individual.

Organizational Mass Performance. A regression analysis on the mass performance condition lead to the following results: Table 7.13b shows a negatively significant regression coefficient of the Number of Honorary Awards ($\beta = -.81$; $p = .01$), and non-significant coefficients of the Number of Stimulation Awards and grants. Also, in contrast to the innovative performance results, the size of the organization was a highly significant predictor of mass performance (β

Table 7.12 Intercorrelations organizational characteristics (N= 1413 Organizations)

<i>Variable</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Percentage of female affiliates	—												
2. Number of Employees (1998)	.05	—											
3. Org. Capitalization	-.01	.64***	—										
4. Innovative Performance	.01	-.03	.00	—									
5. Mass Performance	.01	.27***	.13*	.08**	—								
6. Balance Performance	.00	.00	.03	.66***	.19***	—							
7. New Pub. Awr/Grant affiliates	.05	.02	.14*	.48***	.26***	.52***	—						
8. New Pub. Innov. Awr affiliates	.04	.01	.06	.41***	.25***	.43***	.81***	—					
9. New Pub. Honorary Awr affiliates	.03	.01	.14*	.43***	.26***	.51***	.99***	.80***	—				
10. New Pub Stim. Awr affiliates	.05	.02	.15**	.57***	.22***	.47***	.84***	.70***	.78***	—			
11. New Pub Grant affiliates	.09**	.01	.09	.52***	.20***	.51***	.87***	.68***	.81***	.78***	—		
12. New Pub Prom. Awr. Affiliates	.07*	.09	.12*	.15***	.28***	.23***	.55***	.44***	.52***	.37***	.41***	—	
13. Sum of Awr/ Grant Moneys Aff.	.04	.01	.14*	.40***	.22***	.44***	.94***	.79***	.95***	.77***	.79***	.45***	—

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. two-tailed.

= .27; $p = .00$). So organizations high on mass performance were large and were unlikely to support their organizational reputation by award or grant winning affiliates.

Organizational Balance Performance. Analyses on the performance in which publishers who kept the balance between innovative and non-innovative mass performance (see Table 7.13c) clearly showed that honorary awards with a negative coefficient ($\beta = -.76, p = .01$) and grants with a positive coefficient ($\beta = .55; p = .00$) significantly explained balance performance – this can be interpreted in a way that an organization seeking to balance innovative with mass performance was related to not having affiliates who win honorary awards, but indeed having many affiliates who receive grants.

7.4 DISCUSSION OF THE INDIVIDUAL & ORGANIZATIONAL LEVEL RESULTS

The findings presented in the foregoing confirm the majority of the hypotheses suggested in Chapters three and four. The following discussion of the results refers to the numbers of the hypotheses presented in section 7.1.

Types of Awards. Awards and grants conferred by expert juries were more likely to support the innovative performance of the receiver than juries consisting of non-expert juries (H3.1.). Only the grant type was found to support innovative performance, and it was indeed only the grant type, which was strongly correlated with expert juries, whereas honorary and stimulation awards were negatively correlated with expert juries. The Promotional Award forms an exceptional case here as will be explained below.

It was hypothesized that awards and grant proceedings via application were more likely to support the innovative performance of the receiver than proceedings via nomination (H3.2.). This hypothesis was confirmed: Grants, which showed a high correlation with application procedures were indeed the only support measure which was related with a change in innovative performance. Honorary awards, which showed a high correlation with nomination procedures, were not.

Individual Innovative Performance. Honorary Awards were hypothesized to be unlikely to support innovative performance (H3.3.). This hypothesis was confirmed as expected. In the above results honorary awards did not support an increase in an individual's innovative performance, but as expected were a response to an individual's innovative performance. The hypothesis that grants were more likely to support the winner's innovative performance than stimulation

Table 7.13a **Summary of Hierarchical Regression Analysis for Variables Predicting the Organization’s Innovative Performance (Cross-sectional) (N=299)**

Variable	Step1			Step2		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls						
% of Female Winners	.00	-.01	.99	-.05	-.88	.38
Total No. Winners	.19	3.30	.00	-.25	-.69	.49
Main Effects						
Turnover per Employee				-.02	-.34	.74
Number of Employees				-.04	-.64	.52
No. Honorary Awards				-.64	-2.11	.04
No. Stimulation Awards				.72	6.34	.00
No. Grants				.48	3.52	.00
R^2		.04				
ΔR^2					.20***	
<i>F</i>		5.47			13.11	
<i>p</i>		.01			.00	
<i>df</i>		2, 296			7, 291	

Note. Organizational innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$

Table 7.13b Summary of Hierarchical Regression Analysis for Variables Predicting the Organization’s Mass Performance (Cross-sectional) (N=299)

Variable	Step1			Step2		
	β	T	p	β	T	p
Controls						
% of Female Winners	.02	.32	.75	.01	.23	.82
Total No. Winners	.29	5.25	.00	1.12	3.03	.00
Main Effects						
Turnover per Employee				-.04	-.71	.48
Number of Employees				.27	4.87	.00
No. Honorary Awards				-.81	-2.61	.01
No. Stimulation Awards				-.10	-.81	.42
No. Grants				.00	-.03	.98
R^2		.09				
ΔR^2					.11***	
F		14.09			10.33	
p		.00			.00	
df		2, 296			7, 291	

Note. Organizational Mass Performance; * $p < .05$. ** $p < .01$. *** $p < .001$.

awards (H3.4.) was fully confirmed. It had been argued that stimulation awards already came with honor and publicity, which partly satisfied achievement needs. Those award winners who had been motivated to seek novelties by extrinsic achievement needs were argued to lose an important part of their motivation after such an award event. In addition, grants had a lower publicity (award importance-validated support), which meant that this effect would not occur. Promotional awards did not support the innovative performance of the award

winner (H3.5.). This hypothesis was confirmed by the case study presented in chapter six as well as the negative relationship found in the quantitative study above. Such awards did not have the objective to support innovative performance of an individual, but rather used the individual for the ends of those sponsoring the awards. The jury members are indeed experts (as reported above) who are paid to support the promotional goals with their high status in the industry while they do not support innovative performance. In this sense they form a very specific exception to H3.1.

Proliferation Performance. Hypothesis H3.6 suggesting that honorary awards support the proliferation of previously produced work, could only marginally be confirmed. The above findings first indicated that honorary awards did have a significant effect on proliferation. However, when adding all interaction effects it turned out that it was actually the maturity interaction with the honorary award of the author, which accounted for the proliferation effect. No interactions were found with the other types of awards and also with respect to gender the results were neutral. This indicates that honorary awards are also a response to wide proliferation rather than supporting it.

Innovative Performance, Productivity and the Gender Stereotype. The hypotheses presented in chapter four addressed the influence of stereotypes on the various individual performance measures. It was hypothesized that members of negatively stereotyped groups are less likely than positively stereotyped groups to succeed in grant and award procedures referring to fields in which the stereotype is active (H4.1.). Also it was argued that the female sex has traditionally been stereotyped as not being able to be creative in the arts and the sciences. Indeed, it was found that more than twice as many men succeeded in qualifying for awards and grants than women ($N_{\text{male}} = 943$; $N_{\text{female}} = 385$). These findings confirm the hypothesis. Though it has to be added here that also chi square tests have been conducted on a small sub-sample of publishers (see Appendix D₃) in order to check for the relationships between the ratio male and female living authors affiliated in German-speaking publishers and the ratio of award winning female and male authors. The chi-squares were calculated in two ways: first, within that small sample and secondly, between the small sample author ratio and the total study's award winning ratio. In both cases the chi-squares and non-significant p-values indicated that the ratio of male versus female authors published at all was very similar to the ratio of women and men winning grants and awards. So it can also be concluded that the reason that comparatively few women participate in grants and awards procedures is also related to the fact an equally small amount of women get their work published in the first place.

Furthermore, it was hypothesized that members of a negatively stereotyped group are more likely to participate in grant and award procedures involving application rather than nomination procedures (H4.2.). In fact, on comparing male and female award records it was found that the women who did succeed in participating in grants and awards won significantly more grants ($M = .42$) than men ($M = .27$). Given the characteristics found for grants (application), this hypothesis could be confirmed. However, the hypothesis could not be fully confirmed that members of a negatively stereotyped group are likely to receive less honorary awards than the members of a positively stereotyped group (H4.6.) which is also related to the hypothesis that positively stereotyped groups are likely to participate in grant and award procedures involving nomination (H4.3.). On the one hand when comparing male and female award records it was found that the women who did succeed in winning awards ($N=385$) won significantly less honorary awards (via nomination) ($M = .59$) than men ($M = .72$). However, on the other hand the results of the Cohen's d statistics suggested that this significant difference on the number of honorary awards won may not necessarily have relevance. However, given the small number of women who managed to participate in the first place and the fact that twice as many honorary award than grant events were included in this study, might bring these results in a different perspective.

Interestingly, grants were the only support measure in fact supporting innovative performance, which meant that women do participate in the support type most relevant to innovation. Though as shown in the gender comparison table above (7.2) as well as the regression table 7.4c, women showed a decrease in innovative performance after having received a grant, as opposed to men who showed an increase.

The hypothesis that members of a negatively stereotyped group are likely to receive less validation support than the positively stereotyped group (H4.4.) could not be fully confirmed, for the same reasons discussed in the context of H4.3: Honorary awards are the award type marked by high levels of validation support (high award importance) and there are significant differences between men and women, but they may not necessarily be relevant (Cohen d results). But again, the fact that twice as many men than women qualified for awards in the first place combined with the fact that twice as many honorary awards than grant events were contained in the sample may rightly cause a hesitance to fully reject this hypothesis.

In another hypothesis it was suggested that members of a negatively stereotyped group were likely to receive equal instrumental support like the

positively stereotyped group (H4.5.). The argument was that an enlightened Western society can of course not afford to provide significantly less support to women in those forms of support which are tangible and measurable like instrumental support (award and grant moneys in this case). This would not be politically correct, and can be pointed to and claimed by the disadvantaged. However, more intangible and less measurable support forms such as social recognition and fame are more likely to be withheld. It is more difficult for the disadvantaged to point to injustice here and claim their rights. This was confirmed in the comparison of total financial support received, where there was no significant difference between men and women as opposed to the difference in validation support. Obviously the overall willingness of providers to support female novelty-seekers instrumentally with grants and also to some degree with stimulation awards was high- though not yet to honor them. Women received a lot of small grants while the men received the ones with the highest financial rewards attached. Accordingly, women were not able to transform a grant into an increase in innovative performance. Women as members of the negatively stereotyped group transformed equal amounts of instrumental social support into lower innovative performance than men as members of the positively stereotyped group (H4.7.). More specifically the findings confirmed that members of a negatively stereotyped group were less likely to transform a grant (instrumental support) into an increase in innovative performance than the members of a positively stereotyped group (H4.8.). The same holds marginally for productivity (H4.9.). If it were only the social judgment process that goes wrong for the female participants, one could say that emancipation has reached an important goal. However, the finding that it is also the productivity, which goes awry after a grant, indicates that not only in the social judgment but obviously also in the self-judgment women paralyze themselves. In fact, the above findings show that none of the awards change the productivity of the receivers, apart from this one, only marginally significant, exception: Women may experience a decrease also in productivity after receiving a grant. These findings confirm the 'Sylvia Plath Effect' discussed in Chapter Three.

Interestingly, the genre-specific analyses strongly confirmed this hypothesis. In the genre of children's literature (given that the stereotype has assigned the preoccupation with children traditionally to women) female writers experienced far less disadvantages. For instance, in the children's literature genre no significant difference was found between the innovative performance that men and women were able to achieve after a grant or award event. The disadvantages appeared most strongly in the Belles Lettres, the most prestigious discipline in the literary tradition.

Innovative Performance and the Maturity Stereotype. The cross-sectional results confirm that the more mature an individual, the less likely winning of an honorary award represents a social recognition of this individual's innovative performance (H4.10.).

Innovative Performance and Organizational Level Stereotypes. It was hypothesized that large organizations are likely to be attributed a lower innovative performance than small organizations (H4.11.). This stereotype could not be confirmed. However, it was hypothesized that individuals in the novelty-seeking professions affiliated to larger organizations for the production of their original titles are less likely to receive grants and awards than individuals affiliated to smaller organizations (H4.12.). This hypothesis could be fully confirmed. Indeed the affiliates of publishers with mass performance (which was highly correlated with organizational size) did not win awards and grants. This may be interpreted as an indirect way in which the organizational size stereotype still works in the support systems.

A CRITICAL EVALUATION OF THE GRANT/ AWARD SYSTEM

This study clearly shows that honorary awards do not directly support the innovative performance of individual writers, but honor innovative performance, however only in less mature writers. Thus obviously a sub-classification between honorary awards for the more mature and the less mature would have to be introduced. A surprising finding with respect to honorary awards in general was that they did not lead to an increase in the proliferation of the individual's previously produced work (H3.6). In fact, this effect was only marginal. So, what do honorary awards do? Is their main function to give validation and high instrumental support to those who may already have earned high instrumental (financial) support through the proliferation of their books? As the results indicated, honorary awards went to those who had already high levels of proliferation. Given that honorary awards form the highest share of awards, at least in the German-speaking literary arts, but probably also in other countries, and are assigned the highest award importance, this is a highly relevant question. It may be argued that these awards, apart from honoring those who produced and proliferated, indirectly support innovative performance via the societal level, in that young novelty-seekers may feel inspired by witnessing honorary

award events in more mature writers and feel encouraged to perform the best they can and follow the famous examples. This effect of honorary awards is of course not captured by the above study. And it will be clear that the motivation to obtain honorary awards, which may be stimulated in younger writers witnessing the honorary events of others, is not necessarily conducive to creativity: As has been argued in the theoretical chapters, such motivations are extrinsic and not necessarily conducive to novelty-finding and production rather than to support it.

In sum, it also has to be noted that the R^2 and ΔR^2 in those various regression analyses turned out to be rather low, indicating that especially in the longitudinal outcomes, apart from very significant coefficients, only about 3% of the innovative performance of an individual was explained by the grant/award model. This might indicate the poor efficiency of this particular impersonal support system in the German speaking literary arts with respect to promoting innovative performance. Whether this is a specificity of the German award system or whether this is the case in other countries as well remains a question worth investigating. It will also be necessary to design future research projects with wider time frames, since two or three years of productivity after an award or grant are not a very long response period in literary production, especially since for many writers and poets the literary profession is exercised part-time.

Nevertheless, in a Western European Society, where leading politicians see innovation at the heart of the countries' welfare, the attitude towards innovation does obviously not translate itself into the tools with which it seeks to support innovation. The very small sample of grant/award events, which explicitly were designated to support novel, original initiatives in the literary arts, have been found to only constitute 1.8 percent of the total of events, not conferred by expert juries, which gives rise to the question whether experts do confirm the status quo rather than support the novel. This small sample of 'innovative awards' was not assigned any particular financial and public importance. According to the above finding, in this society the honorary awards, which have the least to do with supporting innovativeness are valued the highest.

The central question to be answered was: do awards stimulate creativity and innovative performance at all? None of these support measures significantly changed the productivity or proliferation of the individual, and only grants seemed to stimulate innovative performance as shown in the longitudinal study. In the logistic regression analysis where grants and awards were treated as the dependent variables it turned out that the innovative performance before an award predicted the winning of an honorary award rather than the other way round. This

was not the case for grants and stimulation awards. Given that grants turned out in the longitudinal design to be the best stimulators of innovative performance, a society that would like to stimulate innovative performance may be well advised to convert some of its financial resources allocated to honorary awards into grant moneys. This would of course mean that the honorable society events would be reduced. As described in chapter three the interesting mechanism behind the reputable and honorable events was that many other parties profited from the honor and reputation of the honoured ones, not necessarily the honoured person him or herself. So financial resources (and remember that the honorary awards came with the highest financial rewards) actually support a wide range of networking activities in an industry, not innovation.

An important question remains about the gender difference in the validation support forms. While most men and women in Western societies may have come to live in the belief that the discrimination of women has become a closed chapter of human history, the above results show that the process towards giving equal chances to men and women may not be entirely finished. Men and women (at least those who *dare* to participate and compete with men) seemed to be treated equally when it comes to instrumental support measures (which are tangible and measurable like grant and award moneys); however, significant, but possibly not relevant differences could be observed in validation support measures (more intangible and less measurable, e.g. social recognition, fame). The comparatively small group of women who did participate in the award and grant procedures, did in total obtain the same amount of financial support- however, they received the less prestigious support forms. They had to apply for more grants than men to achieve the same total of financial support. Also when it came to innovative performance (which is after all a validation form of support since it includes the social recognition of contributions as novel) women had a hard time achieving it. It may still be concluded that the society mirrored in this study practices a politically correct distribution of instrumental support forms, but still withholds support of the less tangible and less measurable form. These less measurable forms of injustice could be the ones that can survive the longest in a society that has- in a politically correct way- condemned the negative effects of the gender stereotype. The more hidden, validation support differences (for instance in social recognition) could be the last bastions of an old and officially abolished stereotype.

Those women who made it through the barriers obviously were strong in receiving grants. Grants have been identified as the best measure to support innovative performance. So, we can conclude that this society does invest its

most innovation-relevant support instruments into women, but in the next step paralyzes or withholds the innovative performance for what has been achieved with these grants. However, this is only one possible explanation. There are quite some other ways in which these results may be interpreted. Another would be the following: it has been argued in chapter four that only the most highly novelty-seeking and self-directed women have been likely to have passed the stereotype barriers and participated in the novelty-seeking professions. The downsides of extremely high scores in the dopamine-regulated novelty-seeking temperament have been discussed in chapter two. There, the argument has been made that extremely high TCI novelty-seeking scores (Cloninger, Przybeck, Svrakic, & Wetzel, 1994) may lead to problems with respect to finishing projects, because the novelty-seeker's draw to new projects is comparatively high. In that sense, a biopsychosocial explanation of the above gender differences may also be that the smaller sample of women who have received grants and awards in this study are also likely to be a sample of women who score extremely high in the novelty-seeking dimension. Their more negative results compared to men, especially when it comes to innovative performance after grants, may also be connected to the stereotype-related barriers that lead to a social selection for extremely novelty-seeking women. To recognize the relevance of such questions and to investigate them requires an integrated biopsychosocial model as it has been suggested in chapter two (The Novelty Generation Model- NGM). Suggestions on how this evidence could be obtained for this particular research setting will be discussed in the next chapter, preceded by more detailed conclusions on this research and its limitations.

CHAPTER EIGHT

CONCLUDING PART II: IMPLICATIONS OF THE EMPIRICAL STUDY AND FUTURE RESEARCH ON AWARDS AND GRANTS

Science... never solves a problem
without creating ten more.

George Bernard Shaw

8.1 GRANTS, AWARDS AND INNOVATIVE PERFORMANCE IN THE REALITY OF NOVELTY-SEEKERS AND THEIR SUPPORT PROVIDERS

I started this book by stating that the practice of conferring grants and awards is hardly informed about their effects, especially the psychological effects on those who receive them. Given the importance of innovation in contemporary debates, the psychological effects of grants and awards on the individuals' innovative performance can be expected to be a matter of major societal concern. This research project combines theoretical insights on the novelty generation process with empirical evidence from almost a decade of literary practice and over 3000 grants and awards events. The results suggest a number of relationships interesting for those who issue grants and awards as well as those who receive them.

Remarkably, none of the support measures investigated in this project significantly changed the individual's productivity or proliferation performance, and only grants stimulated innovative performance. Honorary awards were found to be mostly a response to innovative performance and a wider proliferation of an individual's works, that is, they support those who are already established.

This study showed, first, that those issuing awards or grants should be very aware about the consequences that the choice of different types of juries has for supporting innovative performance of the winners. Awards and grants conferred by expert juries more likely support the innovative performance of the receiver than juries consisting of non-expert juries. Honorary and stimulation awards were rarely conferred by expert juries. The procedures used by award or grant-issuing institutions to select the winners seemed strongly related to the individuals' innovative performance after having received grants and awards. Award and grant proceedings via application more likely was followed by an increase in innovative performance than award procedures via nomination.

Grants support the winner's innovative performance far more than stimulation awards. Stimulation awards already come with honor and publicity, which partly satisfies achievement needs. Those award winners who were motivated to seek novelties because of extrinsic achievement needs were argued to loose parts of their motivation after such an award event. Grants had a lower publicity (award importance-validational support), which meant that this detrimental effect would not occur.

Generally speaking, honorary awards were not followed by an increase in innovative performance and only marginally increased the proliferation of the winner's previously produced works. Besides, honorary awards went to those who had already high levels of proliferation. Proliferation would also have been visible in increased sales, another point for a research agenda, but less interesting from a psychological point of view. In the literary publishing industry book sales were almost impossible to obtain, since most of the literary publishing firms have no obligation to make these figures accessible to a wider public and are extremely reticent concerning such information. There may be industries in the novelty-seeking-professions where the disclosure of sales figures is handled as a less protected issue (for instance in the film industry, box office information constitutes more accessible data). It may be worth while to collect sales data in such industries, to shed light on the commercial performance as related to the innovative performance around grant and award events.

Why does a society confer awards with the highest instrumental (financial) value to those who have already reached market support (high sales figures)? Why is it that in an innovation-oriented society the honorary awards, which have the least to do with supporting innovativeness, are valued the highest? Can such an approach of "Those who have, shall be given" be the basis for an intelligent and social policy to support novelty-seekers? High potentials who have not yet acquired the support of the market should get the highest instrumental support,

as they are more likely to be in need of financial support than those who receive honors (which turned out in this study to be a response to high proliferation records, i.e. market support). A society has to decide where to allocate most of its instrumental resources: in honoring people (which is already a major transfer of validation support), or giving people chances by way of grants, and also stimulation awards which are designed in a more adequate form to have a stimulating effect.

These suggestions may help to translate an innovation-centered attitude of decision-makers into support actions, which actually support creativity and innovation. The very small sample of grant/award events, which explicitly were designated to support novel, original initiatives in the literary arts should be strongly expanded, and those who establish new awards may be inspired by the above findings as to which kinds of juries and selection procedures are most adequate for supporting the novelty generation process. Societies may critically investigate whether the awards and grants they issue confirm the status quo or support the novel. They may have to consciously decide to assign far more financial and public importance to 'innovation awards'. The above research findings may encourage policy-makers to think in terms of these broader lines: Does our society pay too much attention to honors in comparison to supporting less established initiatives? Honor and innovation seem to be contradicting terms. The large share of reputable and honorable events in the support systems of some countries stands in stark contrast to the pronounced innovation orientation. An important explanation for such a status quo may be that so many other parties (less visible at first sight) profit from the conferred honors besides the honored persons themselves. Those immense sums of financial support channelled into honors actually support a wide range of networking activities in an industry. Would the high validation support embodied for instance in a Nobel Prize not suffice to do the same network job? The networking aspect influences the social support distribution. It is for instance possible to analyze the nodal points in the literary award jury networks and check the prizes with certain jury members, which are given most frequently to affiliates of particular publishers. How important are these networking activities really? Does it help society as a whole to advance? Or does it paralyze it? In this study, honorary awards had nothing to do with the stimulation of innovative performance of authors, but with the maintenance of the established.

These are two options for support: before the act, that is to stimulate by grants, or to honor performance after the fact. Choosing the latter is the less risky option and also the less stimulating option. Indeed, one attitude is that the

professionals have produce something first, in order to get trust and support later. Another attitude is to ‘spot talent and grant support immediately’. Given the psychological specificities of the novelty-seeking professions the latter option is the most desirable.

Stereotypes are also important in grant and award systems. Almost three-times as many men succeeded in award or grant procedures than women, and their share of honorary awards in the award events of this study was also higher. As a tendency, women applied for support for their projects, whereas men were nominated for receiving honors. Moreover, women had to win more grants than men to receive the same amount of financial support, because men received larger grants. The most striking differences between men and women were that women won significantly more grants, including the more important grants. However, men reached higher professional maturity and higher innovative performance after a grant, received higher sums of financial support in grants, were generally more productive, and also their proliferation performance before a stimulation award and grants was significantly higher.

Grants were the only support measure that supported innovative performance as women obviously had problems to turn the outcomes of their novelty-seeking and novelty-producing into socially recognized innovative performance. One may wonder if they react differently from men, or do women need a larger time window to reach innovative performance? Could social roles with respect to child care and other domestic tasks interfere with novelty generating activities? Is it a selection problem, because only women with extremely high novelty-seeking scores make it across the social barriers erected by the stereotype, combined with the psychological downsides of high novelty seeking? Another possible explanation is that some women receive grants as a substitute for honorary type of awards. They would perform before the grant and receive it as a minor form of honor, not followed by innovative performance as in the case of the male participants. Yet another explanation would be that women are less motivated to continue novelty finding. Traditionally, men are expected to perform and the achievement needs of males may be higher than of women. Women arguably still experience less external pressures to perform and approach the novelty generation process not as a question of ‘being expected to perform’, but rather as of ‘being allowed to participate fully and perform’. According to psychological findings this would be the ideal motivational set-up for highly creative behavior- but the innovative performance still seems to be withheld by society. Explanations of the drop in female innovative performance after a grant is coupled to a required set of problem-solving responses by policy-makers and of the environment of

the female novelty-seeker. If women were equally included in honorary awards procedures, grants could take the role they are actually meant to take: That of supporting future work and not that of honoring earlier work.

If support is meant to promote innovative performance, all involved should know how it is measured, and that the measures can affect the novelty generation process. In this study, data were generated to obtain a multi-rater innovative performance measure for the grant and award-winning authors: A jury consisting of 41 top literary publishers was asked to fill in a questionnaire to obtain these ratings. Choices such as the time windows for the measure (for instance before and after a supportive event) have drastic consequences for the results. If we measure innovative performance over time, ‘averages’ are more gender-neutral than ‘sums’. ‘Measures make men’, as they say. It is possible to design measures that also ‘make women’.

8.2 LIMITATIONS OF THIS STUDY AND THEIR IMPLICATIONS FOR FUTURE RESEARCH

All could be known or shown

If Time were but gone.

William Butler Yeats

Many limitations of the present study relate to the databases that were possible to be built for this study. I intended an event study, where the award or the grant event is related to changes in innovative performance. This means that only data were collected on award or grant winning authors. Since award and grant databases combined with detailed information about their winners are not readily available, the databases that had to be created were highly ambitious within the time span of one dissertation. A limitation of this study is that the used databases lacked information concerning authors affiliated to publishing houses that did not receive grants and awards. As a result, the present study could only exploratively indicate effects between various independent variables and the dependent variable of innovative performance. It was not possible to investigate in detail how strong award and grant effects were compared to authors that did not win awards and grants. Future research projects should therefore build databases that include such information to analyze the effects, but also, for instance, whether not qualifying within the predominant grants and awards systems is even more stimulating than receiving those grants and awards.

This refers back to the arguments on negative support made in chapter four on negative feedback motivating effort and performance.

A second limitation of this study relates to the restricted characteristics of the available data. Little was known about the nominees for the awards and grants, not even the number of men and women that applied for grants and awards. This lack limits the interpretation of results. For instance, could the finding that there were far less women involved in grant and award procedures than men, also be explained by the possibility that women did not apply at all, or is the reason that they were not selected or nominated in the first place? Future research should thus require even more large-scale and detailed data collection projects to explore these factors.

Third, the individual innovative performance measure, which was chosen to operate via the judgment of the jury about the individual's organizational affiliation(s) is certainly less precise than jury judgments referring to each of the 1328 individuals separately. It means that individuals who might be judged as less innovative may be rated up by being subsumed under a more innovative reputation of the total organization or vice versa. However, such reputation transfers are real world phenomena, not only between individuals, but also organizations and individuals. Clearly, individual and organizational variables are not used within the same analysis in this project. The organizational reputation for innovativeness has been used as a proxy for the innovative performance of its affiliates here, but in future research projects that may seek to include both the individual as well as the organizational level in the analysis it will be better to have individuals rated on the individual level by a jury and thereby avoid multi-level issues of interdependence.

A further limitation is that the jury was presented with an open question ("which are, in your opinion, the three most original/ avant-garde publishers in your industry?"), which is different from the alternative method of asking a jury to rate a defined number of objects on a 5 or 7-point Likert scale. An advantage of the latter method is for instance that the reliability of inter-rater agreement can be calculated (for instance by means of r -wg). In the first case, it is impossible to calculate inter-rater reliability measures. This may result in a weak internal validity. However, jury members were asked to actively produce three names of publishing houses not biased by a pre-selected list of publishing houses. This did provide a rating of innovative performance in accordance with the perceptions of experts in the industry. As such, this rating added to the external validity of the study.

As to the professional maturity measure, there are also a number of smaller

limitations: first of all, very frequent German names such as Helga Schneider, Werner Becker, Juergen Becker, Martin Klein, Harald Müller, Jutta Bauer came with a comparatively large number of hits possibly covering various individuals with the same name who could not be distinguished from each other within the available data. Second, there were a couple of cases of writers who have published in the scientific as well as the artistic domain at the same time. This means that their total number of publications did not accurately reflect their performance and reputation in the domain of artistic novelty-seeking measured in this study.

A limitation of the productivity measure is that the quantity of literary production was not distinguished from the quality. Mediocre authors with frequent outputs could not be distinguished from higher quality writers who may have had a smaller amount of publications per year. However, the most important quality variable was embodied in the innovative performance measure. After all, the attribution of the novelty aspect, which takes place in the innovation process, is the most important quality aspect in the novelty-seeking professions. Finally, productivity scores were also genre-sensitive - for instance children's books authors tend to have higher productivity scores within the same number of years as authors of comparable maturity in the adult literature segment. This was a reason to run analyses separately for the adult literature segment, and present some interesting differences.

Another limitation of the study might be that the data used here were biased in the following respect: The Grants and awards conferred in the publishing industry (as listed in the HfK, see chapter seven) may not at all be given with the intent to stimulate innovative performance. Only a very small percentage of the grants and awards explicitly stated to support original production. So one may argue that this sample might not be the most suited to answer the question whether grants and awards stimulate innovation. On the other hand, the arts and the sciences are per definition of the profession there to create the new (besides many other objectives extensively discussed in the philosophy of science and art). There is no way that grants and awards in these professions would be conferred to support the exact replication of something that has already been done before. The choice for these data rests on this assumption and maybe it is also for this self-evident reason that only few of the award descriptions explicitly included the aspect of newness of the awarded product(s). However, there would surely be merit in finding samples that included more explicitly awards and grants meant to stimulate innovative performance.

The results of the cross-sectional design analyses as compared to the results of the longitudinal design, as well as the logistic regression analyses indicate

that far more complex models can be built dealing with the simultaneous relationships between winning grants and awards on the one hand and the innovative performance of the winners on the other hand. Valuable insights could also be won from studies on grants, awards and innovative performance in other countries and cultures and to compare the results in the light of policy differences and innovative outputs generated in these countries. Apart from that, the comparison of different novelty-seeking professions could be a promising approach. In this study, the artistic novelty-seeking profession of the writer/artist has been the subject. Other sectors of the arts such as the film industry mentioned above could be interesting fields. Also, the scientific profession is a highly relevant empirical field in this kind of research. One could think of an exploration of original research-stimulation measures in science like for instance the NWO Vernieuwingsimpuls grants in academia in the Netherlands. Winning grants not only provides the financial basis for producing something but may also motivate people to trust in their abilities and talents. Countries that have a higher proportion of grants than honorary awards have a higher overall innovative performance.

Finally, future projects could expand the use of individual level variables in studies on grants and awards. For instance, TCI Questionnaires (described in Chapter two) could be administered to all male and female award winners and non-award winners to gather data on their novelty-seeking scores. Such expansions of individual level data make it possible to test wider ranges of the Novelty Generation Model introduced in chapter two. Also, as indicated in chapter seven, more knowledge about individual level variables could support interpretation of the current results, for instance with respect to the decrease in innovative performance of women after they have received grants.

8.3 A FINAL WORD

...und Anfang glänzt an allen
Bruchstücken unseres Misslingens...

Rainer Maria Rilke

At the end of this dissertation project, it is worthwhile to link back the results of the empirical Part II of this dissertation to Part I where the whole novelty generation process had been theoretically modelled. Grants and awards in this empirical study have been addressed as one example of the various social

influence and social judgment processes that can influence parts of the Novelty Generation Model (NGM; Figure 2.1). Part II of this dissertation covered empirical testing on the social influence of grants and awards on one component of the NGM, innovative performance. This was the portion that could be handled within the scope of one dissertation, in addition to theoretical analysis. However, not only from the conclusion chapter offered at the end of Part I but also from this concluding chapter of Part II it is evident that this dissertation could serve as an overture for a whole research programme. The empirical part represents a modest first step in uncovering the opportunities and problems that researchers need to be aware of when conducting research on grants and awards in the novelty generation context. The theoretical part as well as this empirical part is a basis for my own post-doctoral research plans, but hopefully also a source of inspiration for other researchers.

This concluding chapter should be encouraging, but also serve as a cautionary note on conducting research on grants and awards with respect to the novelty generation process. The difficulty to obtain and create appropriate databases on grants and awards in the context of novelty generation is probably one reason why this area of the social sciences is so clearly under-researched. Hopefully, others may benefit from the limitations I have faced in this project. I would be glad to have provided a useful, first overview of potential pitfalls that need to be considered when designing such research projects on grants and awards. Given the dearth of theory-building and empirical evidence in this area this project – the first of its kind – was certainly a risky endeavour, but I hope it also shows that it is worthwhile and badly needed that the research community invests in further projects in this field.

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GERMAN SUMMARY - DEUTSCHE ZUSAMMENFASSUNG

EINE INDIVIDUALPSYCHOLOGIE ZU EXPLORATIONSVERHALTEN BEI NEUHEIT, KREATIVITÄT UND INNOVATION

„Novelty-Seeking“ ist ein neuropsychologisches und persönlichkeits-theoretisches Konstrukt, das ins Deutsche übersetzt wörtlich ‚neu-gier‘ bedeutet und das Suchen nach stets neuen Stimuli beschreibt. Novelty-Seeking nach C.R. Cloninger, ein über das dopaminerge System vermitteltes Verhalten (unterschiedliche dopaminerge Rezeptoraktivität), wurde zwar in der medizinischen Literatur in Deutschland verwendet, hat jedoch in der psychologischen Literatur über Kreativität und Innovation überraschenderweise noch nicht seinen festen Platz eingenommen. Ziel der vorliegenden Dissertation war es, den Wert dieses Konstrukts im psychologischen Kontext aufzuzeigen, einen Überblick über die existierende Kreativitäts- und Innovationsliteratur zu geben und dabei auf Schwächen reagierend ein neues Modell vorzulegen, das den Prozess der Neuheits-Generierung (Novelty Generation Process) beschreibt. Das Novelty Generation Model (NGM) unterscheidet drei Komponenten: Novelty-seeking, Kreativität und innovative Leistung. Als theoretischer Hintergrund dienen vor allem drei psychologische Teildisziplinen: Neuropsychologie, Sozialpsychologie und Arbeitspsychologie. Hoch kreative Menschen bevorzugen oft eine relativ freie Arbeitssituation, man denke zum Beispiel an Künstler, Wissenschaftler oder Erfinder. In der psychologischen Literatur über Kreativität und Innovation wurden jedoch vor allem Arbeitssituationen erforscht, in denen das Individuum in Organisationen eingebunden ist und dort oft als Teil von Arbeitsgruppen fungiert. Von einer Individualpsychologie ausgehend wurden in dieser

Dissertation deshalb völlig andere Forschungsschwerpunkte gelegt. So ist das Gewinnen von Preisen und Stipendien beispielsweise weniger ein Thema in der Kreativitätsforschung über Gruppen und Teamarbeit als ein das Individuum betreffendes. Die Vernachlässigung dieses Themas in der psychologischen Literatur ist schwerwiegend, wenn man davon ausgeht, dass Preise und Stipendien die Instrumente sind, mit denen eine Gesellschaft *par excellence* kreative Individuen zu unterstützen vermag. So wird die Dissertation in zwei Teilen präsentiert, in denen die Ergebnisse einer allgemeineren theoretischen Analyse über die Neuheits-Generierung (Teil I) sowie einer spezifischeren empirischen Studie zu Preisen und Stipendien in diesem Kontext (Teil II) nicht nur als Ausgangspunkt dienen sollen für weitere Forschungen im Bereich von Arbeitssituationen, in denen das Individuum relativ unabhängig von Organisationen den Prozess der Neuheits-Generierung durchläuft, sondern auch als praktischer Ratgeber.

In Teil I dieser Dissertation wird zunächst das Problem erarbeitet, dass Experten sich sowohl in der Theorie als auch in der Praxis oft nicht einig sind, wo genau der konzeptionelle Unterschied zwischen Kreativität und Innovation liegt (vor allem im englischsprachigen Gebrauch der Konzepte). In dieser Arbeit werden auf neuro-, persönlichkeits- und sozialpsychologischer Basis Definitionen angeboten, die die folgenden Komponenten der Neuheits-Generierung deutlich unterscheiden: *Novelty-Seeking*, wie oben beschrieben, dann *Kreativität* (die sich hier zusammensetzt aus dem Prozess des ‚Novelty-Finding‘ (Finden des Neuen) und ‚Novelty-Producing‘ (dem Umformen des Gefundenen in ein für andere wahrnehmbares Produkt), und schließlich der *Innovativen Leistung*, hier definiert als Resultat des Exponierens eines Produktes an andere Individuen, die den Aspekt des Neuen in diesem Produkt anhand ihrer Expertise zu beurteilen vermögen. Etwas Neues, das nicht als solches beurteilt wurde, kann nicht als Innovation anerkannt werden. Dieser zentrale Unterschied zwischen etwas ‚Kreativem‘ und etwas ‚Innovativem‘ wurde in den bisherigen Studien oft nicht gemacht, was nicht selten zu schweren konzeptionellen und methodologischen Konsequenzen für die Brauchbarkeit der Forschungsergebnisse führte. Mit der theoretischen Dreiteilung der Neuheits-Generierung wird es möglich, sowohl in der Forschung als auch in der Praxis die Persönlichkeits- sowie Motivationsstrukturen und auch die geeigneten sozialen Stimuli zu identifizieren, die für die jeweiligen Komponenten eine optimale Wirkung erzielen. Dieser theoretische Teil wird mit Beispielen aus Kunst und Wissenschaft illustriert.

Teil II der gegenwärtigen Dissertation befasst sich empirisch mit der Überprüfung von spezifischeren Hypothesen über die Wirkung von Preisen und Stipendien im Kontext der Neuheits-Generierung, die in Teil I erarbeitet

wurden. Diese Hypothesen richten sich auf nur eine der Komponenten des Neuheits-Generierungs-Models, um dieses Forschungsprojekt im Rahmen einer Dissertation zu halten. Untersuchungen über andere Komponenten (unter anderem neuropsychologische Aspekte zwischen Novelty-Seeking und Kreativität) sind in der post-doktoralen Planung. Ziel dieser empirischen Studie war es, einen möglichen Zusammenhang zwischen dem Erhalt von Preisen und Stipendien einerseits und innovativer Leistung andererseits herzustellen. Anhand einer Stichprobe von 1300 deutsch-sprachigen Schriftstellern (ansässig in Deutschland, Österreich und der Schweiz), die im Zeitraum zwischen 1995 und 2001 Preise und Stipendien gewonnen haben, wurde untersucht, wie verschiedene Zuwendungen (Ehrenpreise, Stimulierungspreise und Stipendien mit jeweils verschiedenen finanziellem Gewicht und Prestige) sich auf die innovative Leistung der Gewinner auswirkten und umgekehrt. Eine der wichtigsten Fragen war dabei, ob solche Fördersysteme die innovative Leistung ihrer Empfänger wirklich unterstützen oder eher untergraben, und welche Rolle in diesem Kontext Stereotypen im Bezug auf das Geschlecht und die professionelle Reife der Individuen spielen.

Daten über die innovative Leistung wurden auf der Basis von Beurteilungen einer Jury von 41 Top Literaturverlagschefs (oder ihren Vertretern) erhoben, die eine Rangliste von deutschsprachigen Literaturverlagen erstellten. So wurde die Bewegung der Schriftsteller und Dichter mit ihren Veröffentlichungen innerhalb dieser Rangliste über den Zeitraum 1993-2001 gemessen. Die Auswertung der Daten über mehr als 3000 Preis- und Stipendienvergaben erfolgte hauptsächlich in einem longitudinalen Ansatz mittels hierarchischen sowie logistischen Regressionsanalysen. Hier erschienen Stipendien als geeignete Stimulatoren der individuellen innovativen Leistung. Im Gegensatz dazu waren Ehrenpreise die Folge von innovativer Leistung. Stimulierungspreise, eine dritte Kategorie, in der sich Charakteristika des Stipendiums mit denen des Ehrenpreises vermischten, erwiesen sich zur Stimulation wie zur Ehrung von innovativer Leistung als ungeeignet. Die wichtigsten Resultate dieser Studie zeigen, dass weibliche und männliche Schriftsteller und Dichter sich im Rahmen dieser Förder- und Ehrenmaßnahmen deutlich unterschieden. Zuallererst war festzustellen, dass nur 385 Frauen unter den Gewinnern / Geförderten waren, im Gegensatz zu 943 Männern (dies entspricht auch in etwa dem Verhältnis von männlichen und weiblichen Autoren in Literaturverlagen im Allgemeinen). Im Vergleich waren Männer diejenigen die Ehrenpreise erhielten, während Frauen bei der Zuteilung von Stipendien verhältnismäßig stark vertreten waren. Nichtsdestotrotz bekamen Männer die größeren Stipendien. Während Männer nach Erhalt eines Stipendiums einen deutlichen Anstieg in der innovativen Leistung verzeichneten, konnte man

German Summary

bei Stipendiatinnen ein klares Abfallen der innovativen Leistung feststellen. Die vorliegenden Ergebnisse werden vor dem Hintergrund der in Teil I besprochenen psychologischen Ansatzes diskutiert sowie ihre Implikationen für Theorie und Praxis erörtert.

ABOUT THE AUTHOR

Tanja Sophie Schweizer was born 1973 in Heilbronn, Germany. There she finished the Mönchsee-Gymnasium in 1992 followed by studies of linguistics, pragmatics, economics, philosophy and psychology at the Universities of Stuttgart, London, Amsterdam, Madrid, Rotterdam and Milan. Having received Master's degrees from two of these universities and having taught Master's courses on Creativity and Innovation in three of them, she is currently still working on a specialization in neuropsychology, next to her research activities. In December 2004 she receives her PhD on "An Individual Psychology of Novelty-Seeking, Creativity and Innovation" from Erasmus University for a 4-year project financed by the Dutch National Science Foundation (NWO). From January 2005 onwards she will be holding Assistant Professor positions at the Department of Clinical Neuropsychology, Free University of Amsterdam, and the Department of Innovation & Technology at the Rotterdam School of Management, Erasmus University.

APPENDICES

APPENDIX A

AWARD/ GRANT TYPOLOGY: CONTENT ANALYSIS

One or more key terms contained in the following lists found in the description of the grant or award objectives in the Handbuch für Kulturpreise (HfK, Chapter 7) qualified the different types of grants and awards for the following labels:

Honorary Award

auszeichnen * ehren * ausloben * Verleihung * Würdigung * Anerkennung * Gesamtwerk * prämiert * Medaille * Urkunde * Emblem * Ehrennadel * Ehrengabe * einschlägige Autoren * an Persönlichkeiten verliehen * richtungswesend für die Zeit * bedeutendes Werk * herausragendes Werk * herausragende Literatur * gewichtige Werke * wesentlichen Anteil an der Gestaltung des gegenwärtigen deutschen Kulturlebens * wichtige Impulse für Gegenwart * Qualitätsmaßstäbe beispielhaft * sich verdient gemacht haben * renommierter Autor * breites Publikum * richtungswesend für die zeitgenössische Literatur * für auffallende Leistung * Gesamtwerk eines älteren Autors * das gesamte literarische Schaffen * Verkaufszahlen entscheiden * Das Goldene Taschenbuch * Akademiemitgliedschaft * vorgeschlagene Autoren * Stadtschreiber * Burgschreiber

English translation:

*distinguish * honor * tribute * award * appreciation * recognition * oeuvre * medal * diploma * emblem * brooch of honor * honorary gift * well-known authors * conferred to celebrities * pioneering in its time * important work * exceptional work * exceptional literature * work of major importance * significant influence on contemporary German culture * important impulse for the present time * exemplary quality standards * deserve * reputable author * wide reach * pioneering for contemporary literature * eminent performance * oeuvre of a mature author * whole literary oeuvre * sales figures determine award * the golden paperback * academy membership * nominated authors * writer in residence (city) * writer in residence (castle)*

Stimulation Award

Förderpreis * ermutigen * im Druck vorliegen * Weg zu Medien und Verlagen erleichtern * viel versprechender, aber noch nicht arrivierter Autor * Autor noch nicht etabliert * preiswürdig * fördern * bei Verlag erschienenes Werk * sich durch Veröffentlichungen ausgewiesen haben * foerderungswuerdig * Wettbewerb * Romanerstling * Erstlingswerke * Debüt * der erste Roman * veröffentlichte Texte einsenden * spezielle Altersgruppe (bis 35 Jahre) * Nachwuchs unter 35 Jahren * jung * begabt * Preis für eine Manuskript * Option Verlagsvertrag * mit auffälliger Begabung * außergewöhnliche literarische Begabung * Studienarbeit geehrt * Möglichkeiten verschaffen * Unterstützung des qualifizierten Nachwuchses

English translation:

*stimulation award * encourage * already in print * facilitate access to publicity and publishers * promising author * author not yet established * prize-worthy * support * published work * proved him or herself by publications * support-worthy * competition * first novel * first work * make debut * only send published texts * specific age group (to 35 years) * young talents under 35 years * young * gifted * award for unpublished manuscript * publisher contract is an option * extraordinary talent * eminent literary talent * thesis honored * open up possibilities * support young qualified talent*

Grant/Stipend

Stipendium * Stipendiaten * Arbeitsstipendium * Projekt * projekt-gebunden * PRO= Project grants * konkretes Arbeitsvorhaben * ungestört arbeiten * ohne finanziellen Druck arbeiten * Möglichkeiten schaffen * bisheriges Schaffen rechtfertigt Förderung * mindestens eine Veröffentlichung * förderungswürdig * Arbeitsaufenthalt * Stadtschreiber * Burgschreiber * Aufenthalt im Ausland * Nachwuchs * Kuraufenthalt ältere Autoren * Kurgastdichter * Vergabe * Studienzwecke * Entwürfe realisieren * angehender Autor * beginnen * fortsetzen * ausreifen lassen * vollenden * bislang noch keine Veröffentlichungen * Individuen, die Qualität erwarten lassen * Unterstützung für Arbeit am zweiten Buch * noch nicht veröffentlicht * unveröffentlicht * noch nicht uraufgeführt * Werkstatt * Unterstützung des qualifizierten Nachwuchses

English translation:

*stipend * grant holders * project grant * project * project-related * PRO= project grants * project proposal * work without disturbance * work without financial pressures * create opportunities * support justified by previous work * at least one publication * support-worthy * work stay * writer in residence (city) * writer in residence (castle) * stays abroad * young talent * sending older authors on health cure * writer in residence (health cure) * awarding of a grant * for study purposes * carry out drafts * budding author * start * continue * let mature * finish * no publications yet * promising individuals * support for second book project * yet unpublished * not published yet * first performance not yet taken place * atelier * support to skilled young talents*

Promotional Award

Mundart fördern * Dialekt unterstützen * Gattung fördern * Technologie fördern * Feld stärken * Anreiz geben, um ein Feld zu erkunden * zur Erinnerung an einen berühmten Autor * Förderung von Gedankengut

English translation:

*Support dialects * support a genre * support technology * support a field * support the exploration of a field * support the memory of a famous writer * support a school of thought*

Innovation Award

Unkonventionell * originell * innovativ * schwierige Literatur * kritisch * mutiges Buch * Fortschritt * Belebung literarischer Szene

English Translation:

*Unconventional * original * innovative * high-brow literature * critical * courageous book * advance
* Reviving the literary scene*

APPENDIX B

VARIABLE DESCRIPTIONS: AWARDS AND PUBLICATIONS

Award level:

Award Importance (as calculated by the authors of the Handbuch fuer Kulturpreise (HfK) described in Chapter6)

Score on the award importance index of each award or grant (validation support). This index has been constructed by the editor of the HdK on the basis of the following 3 variables in the respective percentage weighting:

- a) 'Material and organizational conditions of the award = 50 % consisting of:
 - 1) 8 % Ehrenpreise (honorary) assigned more points than Stipendien
 - 2) 15 % Height of award money
 - 3) 18% Award ceremony (public/on television more points assigned than not in public)
 - 4) 4% Annual award more points than award every two years
 - 5) 5% Geographical reach'.

Clearly in this first variable already the highest percentage weightings of this index are assigned to the publicity of an award, while the next variable is a pure publicity variable:

- b) 'Supra-regional publicity of the award' = 10%
- c) 'Prestige and originality of the award' = 40% consisting of
 - 1) 8% Reputation of the jury
 - 2) 12% Reputation of the award winners, also former ones
 - 3) 10% Reputation of the award institutions
 - 4) 10% Originality & function of the award (supportive to cultural policy)

There are a couple of points to be criticized in this award index, for instance the fact that in many awards honorary and stipend awards are contained under one and the same award name and therefore also one index value in the HdK, while the index is said to make an 8% weighted difference between the importance of these two different types of awards. I solved this problem theoretically by introducing the category stimulation award in chapter three. These awards have stipend/grant features but, because they are conferred in the same event as the honorary awards, they have a higher validation support (status) value than other comparable grants conferred on their own.

Nevertheless, the 100% of the award index have publicity and prestige as their core and are therefore ideal to operationalize the validation (status) support variable in this study.

Grants and Award Types

Type of award as theoretically distinguished in chapter three:

- a) Honorary awards (Ehrenpreise) = 0
- b) Stimulation awards (Preise) = 1
- c) Grant (Stipendium) = 2
- d) Promotional honorary award = 3

Since the typology provided in the HdK was too vague, a content analysis was conducted of the award/grant descriptions leading to the above classification. Please see Appendix 1 for the details of the content analysis.

- e) Design award to a publisher = 4
- d) Award for innovative performance of publisher = 5

Selection Procedures

Application/Nomination information:

Applying for an award/grant

- a) Not possible (nicht moeglich) = 0
- b) Required (erforderlich) = 1
- c) Possible (moeglich) = 2
- d) Suggestion by third party such as critic, journalist, publisher
(Vorschlaege dritter, z.B. Kritiker, Publizisten, Verlage) = 3

Jury Composition

- a) Independent expert jury (Unabhaengige Fachjury) = 0
- b) Sponsors and experts mixed (Stifter & Fachjury gemischt) = 1
- c) Representatives of the sponsors (Awarding Institutions) = 2
- d) Other = 3
- e) Market (Bestseller Rankings, Publikumspreise) = 4

Innovativeness Awards & Grants

Innovative Performance aspect explicitly mentioned in the description of the award/grant conferred to the individual

- No = 0
- Yes = 1

Appendices

Publication level:

Genre of the Publication

Kultur allgemein	=1
Kinder-und Jugendliterature	=7
Sprach- und Literaturwissenschaft	=7a
Schoene Literatur	=8a
Philosophie	=10
Psychologie	=11
Bildende Kunst	=46
Photographie	=47
Musik	=48
Theater, Tanz, Film	=49
Sprach- und Literaturwissenschaft	=51-58
Belletristik	=59

The most frequent and most important genre code in the award database is **59**, which stands for *Belles Lettres* followed by *children's literature* with the code 7.

APPENDIX C1

REGRESSION TABLES

Table 7.4a Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Innovative Performance (IP) after winning main honorary award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
IP before main hon. awr	.63	29.11	.00	.63	29.03	.00	.63	29.00	.00
Gender	-.03	-1.15	.25	-.03	-1.25	.21	-.03	-.91	.36
Maturity	.00	.09	.93	.01	.44	.66	.01	.44	.66
Main Effect									
Main honorary award				-.03	-1.45	.15	-.03	-1.22	.23
Interaction Effect									
Gen. * Main Hon. Aw.							.00	-.04	.97
R^2	.40								
ΔR^2				.001			.00		
<i>F</i>	288.69			217.22			173.65		
<i>p</i>	.00			.00			.00		
<i>df</i>	3, 1324			4, 1323			5, 1322		

Note. Mean individual innovative performance (IP) after honorary award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.4b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Innovative Performance (IP) after winning main stimulation award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
IP before main stim. awr	.63	29.11	.00	.63	29.15	.00	.63	29.17	.00
Gender	-.03	-1.15	.25	-.02	-1.12	.26	-.04	-1.54	.02
Maturity	.00	.09	.93	.01	.32	.75	.01	.26	.80
Main Effect									
Main stimulation award				.03	1.36	.17	.01	.51	.61
Interaction Effect									
Gend. * Main Stim. Aw.							.03	1.20	.23
R^2	.40								
ΔR^2				.001			.001		
<i>F</i>	288.69			217.12			174.04		
<i>P</i>	.00			.00			.00		
<i>Df</i>	3, 1324			4, 1323			5, 1322		

Note. Mean individual innovative performance (IP) after stimulation award event; * $p < .05$.
 ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.4c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Innovative Performance (IP) after receiving main grant- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
IP before main grant	.63	29.11	.00	.63	29.23	.00	.63	29.23	.00
Gender	-.03	-1.15	.25	-.03	-1.40	.16	.01	.26	.80
Maturity	.00	.09	.93	.01	.39	.70	.01	.42	.67
Main Effect									
Main grant				.05	2.11	.04	.09	3.24	.00
Interaction Effect									
Gen. * Grant							-.08	-2.60	.01
R^2	.40								
ΔR^2				.002*			.003*		
<i>F</i>	288.69			218.20			176.66		
<i>p</i>	.00			.00			.00		
<i>df</i>	3, 1324			4, 1323			5, 1322		

Note. Mean individual innovative performance (IP) after receiving main grant; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.5a Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after winning main honorary award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main hon. awr	.45	18.02	.00	.45	17.84	.00	.45	17.84	.00
Gender	-.01	-.53	.60	-.01	-.51	.61	.01	.17	.87
Maturity	.06	2.30	.02	.06	2.20	.03	.06	2.16	.03
Main Effect									
Main honorary award				.01	.18	.85	.02	.59	.56
Interaction Effect									
Gend. * Main Hon. Aw.							-.03	-.83	.41
R^2	.21								
ΔR^2				.00			.00		
<i>F</i>	117.98			88.43			70.87		
<i>p</i>	.00			.00			.00		
<i>df</i>	3, 1324			4, 1323			5, 1322		

Note. Mean individual proliferation performance (IP) after honorary award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.5b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after winning main stimulation award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main stim.									
Awr	.45	18.02	.00	.45	18.00	.00	.45	17.99	.00
Gender	-.01	-.53	.60	-.01	-.53	.60	-.01	-.30	.76
Maturity	.06	2.31	.02	.06	2.29	.02	.06	2.31	.02
Main Effect									
Main stimulation award				.00	.11	.91	.01	.30	.76
Interaction Effect									
Gend. * Main Stim. Aw.							-.01	-.38	.70
R^2	.21								
ΔR^2				.00			.00		
<i>F</i>	117.98			88.43			70.12		
<i>p</i>	.00			.00			.00		
<i>df</i>	3, 1324			4, 1323			5, 1322		

Note. Mean individual proliferation performance (PP) after stimulation award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.5c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after receiving main grant- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main grant	.45	18.02	.00	.45	18.00	.00	.45	17.97	.00
Gender	-.01	-.53	.60	-.01	-.56	.58	-.02	-.63	.53
Maturity	.06	2.31	.02	.06	2.32	.02	.06	2.32	.02
Main Effect									
Main grant				.01	.26	.79	.00	.03	.98
Interaction Effect									
Gend. * Main Grant							.01	.31	.76
R^2		.21							
ΔR^2				.00			.00		
<i>F</i>		117.98		88.44			70.73		
<i>p</i>		.00		.00			.00		
<i>df</i>		3, 1324		4, 1323			5, 1322		

Note. Mean individual proliferation performance (PP) after receiving main grant; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.6a (All Awards) Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Innovative Performance (IP) - (including main awards and grants plus gender interactions) Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
IP before main awr	.63	29.11	.00	.63	28.85	.00	.63	28.88	.00
Gender	-.03	-1.15	.25	-.03	-1.44	.15	.10	1.50	.13
Maturity	.00	.09	.93	.02	.70	.48	.02	.67	.51
Main Effect									
Main honorary award				.05	1.47	.14	.09	2.15	.03
Main stimulation award				.08	2.48	.01	.09	2.48	.01
Main grant				.10	2.83	.01	.16	3.95	.00
Interaction Effect									
Gend. * Main Hon. Aw.							-.09	-1.73	.08
Gend. * Stim. Aw.							-.03	-.78	.43
Gend. * Grant							-.14	-2.79	.01
R^2	.40								
ΔR^2				.01*			.004*		
<i>F</i>	288.69			146.99			99.61		
<i>P</i>	.00			.00			.00		
<i>Df</i>	3, 1324			6, 1321			9, 1318		

Note. Mean individual innovative performance (IP) (including awards and grants plus gender interactions); * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.6b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) - (including main awards and grants plus gender interactions) Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main awr	.45	18.02	.00	.45	17.79	.00	.45	17.79	.00
Gender	-.01	-.53	.60	-.01	-.55	.58	.09	1.06	.29
Maturity	.06	2.31	.02	.06	2.25	.02	.06	2.23	.03
Main Effect									
Main honorary award				.03	.73	.47	.07	1.34	.18
Main stimulation award				.02	.65	.52	.05	1.18	.24
Main grant				.03	.74	.46	.05	1.06	.29
Interaction Effect									
Gen. * Main Hon. Aw.							-.08	-1.37	.17
Gen. * Stim. Aw.							-.06	-1.18	.24
Gen. * Grant							-.05	-.92	.36
R^2	.21								
ΔR^2				.00			.00		
<i>F</i>	117.98			58.99			39.53		
<i>P</i>	.00			.00			.00		
<i>Df</i>	3, 1324			6, 1321			9, 1318		

Note. Mean individual proliferation performance (PP) (including awards and grants plus gender interactions); (*ps* < .05)

Table 7.7a. Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Productivity (IP) after winning main honorary award- Longitudinal Approach (N=1327)

Variable	Step1			Step2			Step3		
	β	T	p	β	T	p	β	T	p
Controls									
P before main hon. awr	-1.33	330.29	.00	-1.33	328.70	.00	-1.33	328.59	.00
Gender	.00	-.18	.86	.00	-.30	.76	.00	-1.19	.23
Maturity	2.03	503.40	.00	2.03	503.33	.00	2.03	503.24	.00
Main Effect									
Main honorary award				.00	-1.10	.27	.00	-1.62	.11
Interaction Effect									
Gend. * Main Hon. Aw.							.00	1.29	.20
R^2	.99								
ΔR^2				.00			.00		
F	115676			86785			69501		
p	.00			.00			.00		
df	3, 630			4, 629			5, 628		

Note. Productivity (P) after honorary award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.7b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Productivity (IP) after winning main stimulation award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
P before main stim. awr	-1.33	330.29	.00	-1.33	329.90	.00	-1.33	329.61	.00
Gender	.00	-.18	.86	.00	-.18	.86	.00	-.04	.97
Maturity	2.03	503.40	.00	2.03	502.77	.00	2.03	502.38	.00
Main Effect									
Main stimulation award				.00	.04	.97	.00	.22	.83
Interaction Effect									
Gend. * Main Stim. Aw.							.00	-.33	.74
R^2		.99			.00			.00	
ΔR^2					.00			.00	
<i>F</i>		115676			86619			69197	
<i>p</i>		.00			.00			.00	
<i>df</i>		3, 630			4, 629			5, 628	

Note. Productivity (P) after stimulation award event; * $p < .05$. ** $p < .01$. *** $p < .001$.
(N_{male} = 943; N_{female} = 385)

Table 7.7c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Productivity (IP) after winning main grant-Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
P before main grant	-1.33	330.29	.00	-1.33	329.05	.00	-1.33	329.46	.00
Gender	.00	-.18	.86	.00	-.37	.71	.00	.48	.63
Maturity	2.03	503.40	.00	2.03	503.80	.00	2.03	504.44	.00
Main Effect									
Main grant				.00	1.67	.096	.01	2.34	.02
Interaction Effect									
Gen. * Main grant							.00	-1.68	.09
R^2	.99								
ΔR^2				.00			.00		
<i>F</i>	115676			87003			69804		
<i>p</i>	.00			.00			.00		
<i>Df</i>	3, 630			4, 629			5, 628		

Note. Productivity (P) after grant event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.8a. Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after winning main honorary award- Longitudinal Approach- Alternative Measure (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main hon. awr	.49	14.15	.00	.48	13.53	.00	.48	13.55	.00
Gender	-.03	-.97	.33	-.03	-.73	.47	.01	.16	.87
Main Effect									
Main honorary award				.07	1.95	.05	.09	2.06	.04
Interaction Effect									
Gend. * Main Hon. Aw.							-.05	-.78	.43
R^2	.24								
ΔR^2				.01(*)			.00		
<i>F</i>	100.97			68.87			51.77		
<i>p</i>	.00			.00			.00		
<i>df</i>	2, 631			3, 630			4, 629		

Note. Proliferation Performance (PP) after honorary award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.8b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after winning main stimulation award- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main stim. awr	.49	14.15	.00	.48	13.88	.00	.48	13.87	.00
Gender	-.03	-.97	.33	-.03	-.87	.38	-.03	-.91	.36
Main Effect									
Main stimulation award				-.06	-1.74	.08	-.07	-1.58	.11
Interaction Effect									
Gen. * Main Stim. Aw.							.01	.27	.79
R^2	.24								
ΔR^2				.004 ^(*)			.00		
<i>F</i>	100.97			68.53			51.34		
<i>p</i>	.00			.00			.00		
<i>df</i>	2, 631			3, 630			4, 629		

Note. Proliferation Performance (PP) after stimulation award event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.8c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Change in Proliferation Performance (PP) after winning main grant- Longitudinal Approach (N=1327)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>			<i>Step3</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
PP before main grant	.49	14.14	.00	.48	13.77	.00	.48	13.76	.00
Gender	-.03	-.97	.33	-.03	-.80	.43	-.03	-.82	.41
Main Effect									
Main grant				-.25	-1.34	.18	-.05	-1.24	.22
Interaction Effect									
Gend. * Main grant							.01	.26	.79
R^2	.24								
ΔR^2				.00			.00		
<i>F</i>	100.97			67.99			50.94		
<i>p</i>	.00			.00			.00		
<i>df</i>	2, 631			3, 630			4, 629		

Note. Proliferation Performance (PP) after grant event; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.9a Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Innovative Performance (Cross-sectional) (N=1327)

Variable	Step1			Step2			Step3a		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender				-.02	-.82	.41	-.02	-.62	.54
Maturity				-.01	-.27	.78	.04	1.10	.27
No. Honorary Awards				.19	2.45	.01	.21	1.74	.08
No. Stimulation Awards				.11	2.19	.03	.17	1.79	.07
No. Grants				.13	2.23	.03	.25	2.54	.01
Interaction Effects									
Gend. * No. Hon. Aw.							.00	.03	.98
Gend. * No. Stim. Aw.							-.04	-.40	.69
Gend. * Grants							-.14	-1.55	.12
Maturity * Hon. Aw.							-.11	-3.22	.00
Maturity * Stim. Aw.							.05	1.46	.14
Maturity * Grants							-.05	-1.63	.10
R^2		.04							
ΔR^2		.04			.01			.01**	
<i>F</i>		4.22			3.38			3.28	
<i>P</i>		.00			.00			.00	
<i>df</i>		12, 1314			17, 1309			23, 1303	

Note. Mean individual innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.9b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Innovative Performance- cross-sectional approach (N=1327)- Gender Interaction effects separately

Variable	Step3b			Step3c			Step3d		
	β	T	P	β	T	p	β	T	p
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender	-.02	-7.6	.45	-.02	-.82	.42	-.02	-.67	.50
Maturity	-.10	-.23	.82	-.01	-.26	.79	-.01	-.24	.81
No. Honorary Awards	0.12	1.12	.27	.19	2.45	.01	.19	2.43	.02
No. Stimulation Awards	.11	2.20	.03	.13	1.35	.18	.12	2.18	.03
No. Grants	.13	2.26	.02	.13	2.23	.03	.25	2.58	.01
Interaction Effects									
Gend. * No. Hon. Aw.	.07	.87	.39						
Gend. * No. Stim. Aw.				-.02	-.20	.84			
Gend. * Grants							-.13	-1.53	.12
Maturity * Hon. Aw.									
Maturity * Stim. Aw.									
Maturity * Grants									
R^2									
ΔR^2		.00			.00			.00	
F		3.24			3.19			3.33	
p		.00			.00			.00	
Df		18, 1308			18,1308			18, 1308	

Note. Mean individual innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.9c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Innovative Performance- cross-sectional approach (N=1327)- Maturity Interaction effects separately

<i>Variable</i>	<i>Step3e</i>			<i>Step3f</i>			<i>Step3g</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender	-.02	-.76	.45	-.02	-.82	.42	-.02	-.83	.41
Maturity	.03	.99	.32	.03	.90	.37	-.02	-.47	.64
No. Honorary Awards	.20	2.67	.01	.20	2.50	.01	.19	2.43	.02
No. Stimulation Awards	.12	2.39	.02	.14	2.63	.01	.11	2.19	.03
No. Grants	.13	2.31	.02	.13	2.30	.02	.12	2.16	.03
Interaction Effects									
Gend. * No. Hon. Aw.									
Gend. * No. Stim. Aw.									
Gend. * Grants									
Maturity * Hon. Aw.	-.10	-3.16	.00						
Maturity * Stim. Aw.				.07	2.05	.04			
Maturity * Grants							-.02	-.55	.59
R^2									
ΔR^2		.01**		.01*			.00		
<i>F</i>		3.80		3.44			3.21		
<i>p</i>		.00		.00			.00		
<i>df</i>		18, 1308		18, 1308			18, 1308		

Note. Mean individual innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.10a Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Proliferation Performance- cross-sectional approach (N=1327)

Variable	Step1			Step2			Step3a		
	β	T	p	β	T	p	β	T	p
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender				.00	.06	.95	.00	.00	.99
Maturity				.10	3.26	.00	.14	3.72	.00
No. Honorary Awards				.15	1.96	.05	.30	2.07	.04
No. Stimulation Awards				.05	1.08	.28	.11	1.17	.24
No. Grants				.07	1.20	.23	.10	1.00	.61
Interaction Effects									
Gend. * No. Hon. Aw.							-.08	-.88	.38
Gend. * No. Stim. Aw.							-.04	-.40	.69
Gend. * Grants							.02	.22	.83
Maturity * Hon. Aw.							-.07	-1.93	.05
Maturity * Stim. Aw.							.05	1.51	.13
Maturity * Grants							-.02	-.57	.57
R^2		.01							
ΔR^2					.02**			.01	
F		1.13			2.0			1.83	
P		0.33			.01			.01	
Df		12, 1314			17, 1309			23, 1303	

Note. Mean individual proliferation performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.10b Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Proliferation Performance- cross-sectional approach (N=1327)- Gender Interaction effects separately

<i>Variable</i>	<i>Step3b</i>			<i>Step3c</i>			<i>Step3d</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender	.00	.00	.99	.00	.06	.95	.00	-.00	.99
Maturity	.10	3.22	.00	.10	3.30	.00	.10	3.25	.00
No. Honorary Awards	.22	2.02	.04	.15	1.96	.10	.15	1.97	.05
No. Stimulation Awards	.05	1.07	.30	.07	.80	.50	.06	1.08	.28
No. Grants	.07	1.17	.24	.07	1.20	.23	.02	.21	.83
Interaction Effects									
Gend. * No. Hon. Aw.	-.08	-.90	.36						
Gend. * No. Stim. Aw.				-.02	-.21	.83			
Gend. * Grants							.10	.65	.52
Maturity * Hon. Aw.									
Maturity * Stim. Aw.									
Maturity * Grants									
R^2									
ΔR^2		.00		.00			.00		
<i>F</i>		1.91		1.87			1.90		
<i>p</i>		.01		.02			.01		
<i>Df</i>		18, 1308		18, 1308			18, 1308		

Note. Mean individual proliferation performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.10c Summary of Hierarchical Regression Analysis for Variables Predicting the Individual's Proliferation Performance- cross-sectional approach (N=1327)- Maturity Interaction effects separately

<i>Variable</i>	<i>Step3e</i>			<i>Step3f</i>			<i>Step3g</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls									
No. of aw. per year				Years 1988-2001 included					
Main Effects									
Gender	.00	.10	.92	.00	.07	.95	.00	.06	.95
Maturity	.12	3.80	.00	.13	3.78	.00	.10	2.93	.00
No. Honorary Awards	.17	2.10	.04	.16	2.01	.05	.15	1.95	.05
No. Stimulation Awards	.06	1.21	.23	.08	1.51	.13	.05	1.08	.28
No. Grants	.07	1.25	.21	.07	1.27	.21	.07	1.18	.24
Interaction Effects									
Gend. * No. Hon. Aw.									
Gend. * No. Stim. Aw.									
Gend. * Grants									
Maturity * Hon. Aw.	-.07	-2.01	.04						
Maturity * Stim. Aw.				.07	1.91	.06			
Maturity * Grants							-.00	-.08	.94
R^2									
ΔR^2		.00*		.00(*)			.00		
<i>F</i>		2.10		2.08			1.87		
<i>P</i>		.01		.01			.02		
<i>Df</i>		18, 1308		18, 1308			18, 1308		

Note. Mean individual proliferation performance; * $p < .05$. ** $p < .01$. *** $p < .001$. (N_{male} = 943; N_{female} = 385)

Table 7.11 Summary of Logistic Regression Analysis for Variables Predicting the Individual's Winning of Honorary Awards, Grants and Stimulation Awards

<i>Variable</i>	<i>Honorary Award</i>			<i>Grant</i>			<i>Stimulation Award</i>		
	<i>B</i>	<i>S.E.</i>	<i>p</i>	<i>B</i>	<i>S.E.</i>	<i>p</i>	<i>B</i>	<i>S.E.</i>	<i>p</i>
Constant	-0.44	.08	.00	-0.92	.09	.00	-0.90	.10	.00
IP before main award	.16	.04	.00	-0.08	.04	.06	.00	.04	.93
Gender	-0.31	.13	.02	.57	.14	.00	-0.16	.16	.32
Maturity	.09	.01	.00	-0.07	.01	.00	-0.12	.02	.00
<i>Chi- square (3)</i>	147.39			70.73			69.29		
<i>-2 log likelihood</i>	1693.25			1444.41			1246.92		
<i>Cox & Snell R Square</i>	.11			.05			.05		
<i>Nagelkerke R Square</i>	.14			.08			.08		
<i>% corrected class.</i>	66.00			74.2			80.3		

Note. Winning Main Honorary Awards, Grants, Stimulation Awards; * $p < .05$. ** $p < .01$. *** $p < .001$; based on a Wald Test with $df= 1$; IP= Innovative Performance.

Table 7.13a Summary of Hierarchical Regression Analysis for Variables Predicting the Organization’s Innovative Performance (Cross-sectional) (N=299)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls						
% of Female Winners	.00	-.01	.99	-.05	-.88	.38
Total No. Winners	.19	3.30	.00	-.25	-.69	.49
Main Effects						
Turnover per Employee				-.02	-.34	.74
Number of Employees				-.04	-.64	.52
No. Honorary Awards				-.64	-2.11	.04
No. Stimulation Awards				.72	6.34	.00
No. Grants				.48	3.52	.00
R^2	.04					
ΔR^2				.20***		
<i>F</i>	5.47			13.11		
<i>p</i>	.01			.00		
<i>df</i>	2, 296			7, 291		

Note .Organizational innovative performance; * $p < .05$. ** $p < .01$. *** $p < .001$

Table 7.13b Summary of Hierarchical Regression Analysis for Variables Predicting the Organization’s Mass Performance (Cross-sectional) (N=299)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls						
% of Female Winners	.02	.32	.75	.01	.23	.82
Total No. Winners	.29	5.25	.00	1.12	3.03	.00
Main Effects						
Turnover per Employee				-.04	-.71	.48
Number of Employees				.27	4.87	.00
No. Honorary Awards				-.81	-2.61	.01
No. Stimulation Awards				-.10	-.81	.42
No. Grants				.00	-.03	.98
R^2	.09					
ΔR^2				.11***		
<i>F</i>	14.09			10.33		
<i>p</i>	.00			.00		
<i>df</i>	2, 296			7, 291		

Note. Organizational Mass Performance; * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7.13c Summary of Hierarchical Regression Analysis for Variables Predicting The Organization’s Balance Performance (Cross-sectional) (N=299)

<i>Variable</i>	<i>Step1</i>			<i>Step2</i>		
	β	<i>T</i>	<i>p</i>	β	<i>T</i>	<i>p</i>
Controls						
% of Female Winners	-.02	-.31	.76	-.05	-1.04	.30
Total No. Winners	.40	7.47	.00	.76	2.10	.04
Main Effects						
Turnover per Employee				.03	.60	.55
Number of Employees				.00	-.05	.96
No. Honorary Awards				-.76	-2.51	.01
No. Stimulation Awards				-.12	-.99	.32
No. Grants				.55	4.04	.00
R^2		.16				
ΔR^2					.08***	
<i>F</i>		28.01			13.16	
<i>p</i>		.00			.00	
<i>df</i>		2, 296			7, 291	

Note. Organizational Balance Performance; * $p < .05$. ** $p < .01$. *** $p < .001$

APPENDIX C2

INTERVIEW DETAILS

Table 6.1 Interview details for the eBook Award Case Study

<i>Name Interviewee</i>	<i>Function</i>	<i>Place/ Date</i>
Editions 00h00.com, Paris		
Jean-Pierre Arbon	Managing Director	Frankfurt Bookfair, October 2000 & 2001
Constance Krebs	Editor	Paris, July 2000
Pascale Lebel	Webmaster	Paris, July 2000
Marjorie Marlein	Communication and Marketing	Paris, July 2000
International eBook Award Foundation, New York		
Alberto Vitale	Chairman	Frankfurt, October 2000 & October 2001
Gemstar eBooks, Hamburg		
Hermann Salmen	Managing Director, Germany	Various interviews in Hamburg, Cologne, Munich and Frankfurt in 2000, 2001 and 2002
Ed Mc Bain	Crime Writer, eBook Award Winner	Frankfurt, October 2000

APPENDIX D

PARTICIPANTS IN THE EMPIRICAL STUDY

Table D1: Jury Members Assessing Performance: Directors (or their Deputies) of the Following Literary Publishers in the German Publishing Industry

Achilla-Presse, Verl.-Buchh.	Luchterhand-Literaturverl.
Ammann	Maro-Verl.
Argon	Matthes und Seitz
Brinkmann & Bose	Müller
Dahlemer Verlagsanstalt	Ed. Nautilus
Deuticke	Reclam
Literaturverl. Droschl	Residenz-Verl.
DuMont Buchverlag	ROSPO-Verl.
EfeF verlag	Rowohlt Verlag
Elfenbein Verlag	Schneekluth
Eremiten	Schöffling
Eulenspiegel-Verl.	Speer Verlag
Europa-Verl.	Suhrkamp
Fest	Ed. Trèves
Fischer Verlag	Unionsverl.
Das Fröhliche Wohnzimmer-Ed.	Verl. Volk und Welt
Frankfurter Verl.-Anst.	Wagenbach
Grupello	Wallstein Verlag
Haymon	Wunderhorn
Kunstmann	Zsolnay
Loecker Verlag	

**Table D2 Publishers Ranked According to Nominations as “Innovative Publishers”
(see Chapter 7)**

Suhrkamp	11	Ed. Nautilus	1
DuMont Buchverlag	10	Ed. Selene	1
Wagenbach	9	Urs Engeler	1
Hanser	7	Fest	1
Eichborn	6	Haymon	1
Kiepenheuer & Witsch	6	Kiepenheuer	1
Kunstmann	5	Kleinheinrich	1
Literaturverl. Droschl	5	Klöpfer und Meyer	1
Berlin Verlag	4	Konkursbuchverl.	1
Ammann	3	Libelle	1
Aufbau-Verl.	3	Luchterhand	1
Diogenes	3	Matthes und Seitz	1
Maro-Verl.	3	Residenz-Verl.	1
Ritter	3	ROSPO-Verl.	1
Beck	2	Rowohlt	1
Bilger	2	Steidl	1
Dr.-Haus Galrev	2	Stroemfeld	1
Frankfurter Verl.-Anst.	2	Transit	1
Haffmans-Verl.	2	Unionsverl.	1
Merwe Verlag	2	Wallstein-Verl	1
Zsolnay	2	Weidle	1
Arche	1	Zwischen den Zeilen	1
Bohem-Press	1	Das Gedicht (AGL-Verlag)	1
Dt. Verl.-Anst.	1		

Note. The rest of the 1403 Publishers included in the award analysis received 0 nominations by the jury.

Table D3 Sample for male-female author ratio including large, medium and small literary publishers

Publisher (ID)	NM	NF	NAM	NAF
Frankfurter Verl.-Anst. (460)	29	22	6	1
Hanser (534)	50	9	58	12
Haymon (544)	54	26	10	2
Kunstmann (719)	13	5	2	0
Suhrkamp (1148)	251	102	91	27
Unionsverl. (1209)	82	41	3	2

Note. NM= Number of Male Living Authors published; NF= Number of Female Living Authors published; NAM= Number of Awards/Grants won by male authors ; NAF= Number of Awards/Grants won by female authors

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An Individual Psychology of Novelty-Seeking, Creativity and Innovation

What does it take to generate something new? The desire to seek something new, the satisfaction of finding something, sharing these findings with others who also recognize them as new - these are key ingredients of generating a novelty. Part One of this book proposes a model of the novelty generation process based on an analysis of psychological theories, most importantly drawing from neuropsychology and social psychology. This Novelty Generation Model (NGM) clearly distinguishes three components: novelty-seeking, creativity and innovative performance. It is meant to provide a basis for better understanding the links between these particular components and identifying what interferes with and what facilitates each of them. Practical advice is also generated on this basis that is relevant not only for the novelty-seekers themselves, but also for their social environment that may want to support them. Highly creative professionals are often only loosely affiliated with organizations, while much of the current scientific literature on creativity and innovation focuses on individuals in tighter employee relationships and teams in organizations. This book presents an individual work psychology for those settings where creative professionals (be it artists, scientists or inventors) see organizations (e.g. publishers or universities) more as service-providers to their own work. In such comparatively free professional settings other support issues seem to become more relevant: For instance grants and awards conferred to individuals. These phenomena that have not yet been paid attention to in the psychological literature on creativity and innovation, are given a place in this individual work psychology. Many questions may be asked about grants and awards, whether they actually support innovation is an important one. Part Two, the empirical part of this book, among others presents a large-scale longitudinal study that tests some more specific hypotheses on the relationship between the individual's innovative performance and winning awards and grants. The study includes 1348 writers and poets that have received grants and/or awards in the German-speaking publishing area.

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