

Management for Professionals

Monika Wastian · Lutz von Rosenstiel
Michael A. West · Isabell Braumandl
Editors

Applied Psychology for Project Managers

A Practitioner's Guide to
Successful Project Management

 Springer

Management for Professionals

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Editors

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Project Management

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Editors

Monika Wastian
Institut für Organisationspsychologie
Munich
Germany

Lutz von Rosenstiel
Ludwig-Maximilians-University Munich
Institute for Psychology
Munich
Germany

Michael A. West
Lancaster University Management
School and The King's Fund
Lancaster and London
United Kingdom

Isabell Braumannl
CoBeCe
Regensburg
Germany

Translated, completely revised and extended edition of: *Angewandte Psychologie für das Projektmanagement*, 2nd ed., by Wastian, Braumannl, von Rosenstiel (Eds.)

© Springer Berlin Heidelberg 2012

ISSN 2192-8096

ISBN 978-3-662-44213-5

DOI 10.1007/978-3-662-44214-2

Springer Heidelberg New York Dordrecht London

ISSN 2192-810X (electronic)

ISBN 978-3-662-44214-2 (eBook)

Library of Congress Control Number: 2015931649

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Printed on acid-free paper

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Foreword

This book addresses, with admirable thoroughness, an aspect of project management that is becoming increasingly recognized as vitally important to project success but which often seems, frustratingly, very large, ill-bounded and fuzzy: people. For their characteristics – their strengths, their weaknesses, their independence and unpredictability – and how they are managed are at the heart of the effective management of projects. Now with this new edition of *Applied Psychology for Project Managers*, already something of a classic in its previous 2009 and 2012 German editions, we have no need of excuses. The field is laid out with admirable clarity – a real piece of scholarship and professionalism!

The book argues that much of the people side of project management is based on science – specifically a science that can ‘make well-founded statements about human experience and behavior’: organizational psychology. Whether the typical project manager (if there is such a thing) will act like, or think of themselves as, organizational psychologists may be questionable. Instinct too often rules. But insofar as education lays the ground and shapes the individual, learning to behave and think like an applied organizational psychologist cannot but be helpful. The rigour and clarity that come from good science can only help managers to manage better.

But there is still a long way to go. We should beware of thinking that such knowledge is forever complete and true. As good scientists, we should be questioning and re-evaluating what we feel we can say, doing so on the basis of sound methodology and empirical evidence, for falsifiability is at the heart of scientific method.

We should note particularly the effect of changing context. Management knowledge is context dependent, both in its formulation and in its application. Our knowledge of it is situated. Project management is ‘invented not found’. The ‘truths’ that organizational psychology offers need therefore to be evaluated in the context of their application. This work takes as its model of project management a largely decontextualized description of aspects of management where people skills are dominant. The implied opportunity to educators, whether in academia or practice, to build a richer contextual landscape of application is obvious.

In reality, organizational psychology is of course only one of the disciplines that the manager of projects needs to call upon. The discipline of managing projects (and programmes) is pluralistic. Typically project work involves a combination of

knowledge areas, and we have to deal simultaneously with a conflux of epistemologies – for example, making difficult, time- or cost-pressured decisions about commercial or technical matters or judging how high to pitch a stretch target. We need to factor this pluralism into our exploration of project management knowledge.

The ideas put forward in this book will provide a sound basis for developing a fuller understanding of the reality of managing projects – a reality in which people are central to application, not just an addendum to tools and processes. It will be a rare, and probably not very enquiring, soul therefore that will not benefit from reading *Applied Psychology for Project Managers*.

Peter W.G. Morris
University College London
London, UK

Preface

Our world is changing faster than ever before. Corporations and nonprofit organizations are changing in its wake. Clear-cut hierarchies and organizational structures that have been stable for years are disappearing. New, flexible forms of organization like networks, clan organizations, or project groups are taking their place. This is no surprise considering that, in many cases, the tasks that have to be dealt with are now far less predictable. No single specialist now has all the competence needed to grasp the complexity of these tasks, let alone undertake them by himself or herself. Consequently, people with different professional backgrounds and experience have to work together on a temporary basis in order to accomplish the tasks at hand and solve urgent problems. Projects are initiated, and project team members often face the challenge of having to manage projects, while covering their roles in the line at the same time.

When assembling a project team, the common approach – provided that choice is available – is finding the skills and competences needed to complete the project, rather than considering the personal fit of the team members. Their fit is either taken for granted or not taken into consideration at all. Research in social psychology suggests that the formation of a work group is but the first step in a lengthy team-building process. The steps of this process have been labeled ‘forming’, ‘storming’, ‘norming’, and ‘performing’. Organizations, however, often expect project groups to ‘perform’ right from the beginning or project kickoff. Yet, whenever people interact and work together, there are affection and aversion, anticipation and skepticism regarding the cooperation, undiscovered ‘skeletons in the closet’, unspoken hurt feelings, self-promotion and impression management, hidden agendas, and political behavior that can undermine achieving the project goal. In short, when humans cooperate, they face human problems. That is where applied psychology comes in, and that is what our book is about.

It is our aim to provide a practical guide to successful project management and effective project work that is scientifically grounded, yet hands-on. The contributing authors are natives of both worlds: science, especially applied psychology, and practice, primarily project work. The authors are either well-known scholars, who have insight into practical work and who have supported projects or have been a part of them, or they are experienced practitioners of project work, who have reflected on the theoretical and scientific implications of their experience. They are all psychologists or have a psychological approach to their work.

This book covers all of the main psychological issues that arise in project work: managing project processes, information, and knowledge; coaching and team-building; project-oriented human resource management; power, influence, and political strategies; cooperation, communication, and commitment in project teams; leadership; and the project manager's self-management. Our focus is on the specific challenges that project managers face in their everyday work, and our perspective is psychological.

We would like to express our gratitude as editors to the authors who not only wrote their articles and sometimes revised them multiple times, but also cast a critical look at the contributions of their coauthors. We also thank those who supported the path of turning our idea into this book and whose comments and feedback helped us build the bridges between psychology and project management and between science and practice. These are Jasmin Albert, Birgit Aleith, Susanne Bögel-Fischer, Elisabeth Fleschhut, Irmgard Hausmann, Vincent Kraus, Ingrid Kuhrts, Markus Lambert, Werner Tantz, Burkhard Tauschl, Martina Völkl, and Franziska Wastian.

We hope that this book finds interested readers who benefit from it in their daily work.

Munich and Regensburg, Germany
Lancaster and London, UK

Winter 2014

Lutz von Rosenstiel
Monika Wastian
Isabell Braumandl
Michael A. West

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About the Editors



Monika Wastian, Director of the Institut für Organisationspsychologie (Institute for Organizational Psychology) and coach in Munich, Germany, holds a degree in psychology. Apart from 25 years in management, coaching and consulting, she has been publishing, lecturing at various universities, doing research, and developing methods in her fields of expertise since 2001. She specializes in project coaching and in psychological factors in project management, including skills and competence management in innovation, change, and strategic projects.



Lutz von Rosenstiel was Professor Emeritus at Ludwig-Maximilians-University in Munich, visiting professor at Vienna University of Economics and Business, and member of several academic advisory councils and boards. He dedicated 50 years of his life to studying, teaching and publishing in the field of organizational and business psychology. His research focus was on leadership, organizational socialization, and competence management. After receiving his Ph.D. and habilitating in psychology, management and philosophy he became Chair of Economic and Organizational Psychology, first at Augsburg University, then, from 1977 to 2006, at Ludwig-Maximilians-University. There, he was also Deputy Vice-Chancellor from 1992 to 1999. Among the many honors he received for his work was the German Psychology Award which he received in 1993. Sadly, he passed away in 2013.



Michael West is Senior Fellow at The King's Fund, London; Professor of Organizational Psychology at Lancaster University Management School; and Emeritus Professor at Aston University. He has authored, edited or co-edited many books and published over 200 articles for scientific and practitioner publications, as well as chapters in scholarly books. The focus of his research over 30 years has been on team work, culture and leadership in organizations, and organizational innovation and effectiveness, particularly in relation to the organization of health services. He is a Fellow of the American Psychological Association, The British Psychological Society, International Association of Applied Psychology, Academy of Social Sciences, and the British Academy of Management.



Isabell Braumandl, coach and Director of the Centre of Coaching and Consulting in Regensburg, holds a degree in psychology and economics. She has been working in management, consulting and business coaching for 27 years. Since 2003, she has also been publishing and lecturing at various universities in the fields of coaching, leadership, time- and self-management. She specializes in career coaching, didactic coaching and strategy coaching.

Lutz von Rosenstiel, Monika Wastian, Isabell Braumandl,
and Michael A. West

Abstract

The course and the success of projects depend essentially on the people who design project processes or pass judgment on their results. Conversely, the requirements and parameters of projects also influence the experience and behavior of the project's participants. Project work and project management are thus a form of applied psychology. This chapter provides an overview of this book's contents, explains the purpose of applied and organizational psychology and the significance of project management in modern organizations, and explores the role applied psychology plays in project management.

1.1 What Awaits You in This Book? What Benefits Will It Give You for Everyday Practice in Project Management?

For many years now, projects have been the norm in the economy, academia, and public service. Project management has become an increasingly high-profile topic in business, management, science, and public institutions. Much attention has been given to examples of outstandingly successful projects. However, projects often

L. von Rosenstiel

Ludwig-Maximilians-University Munich, Institute for Psychology, Munich, Germany

M. Wastian (✉)

Institut für Organisationspsychologie, Munich, Germany

e-mail: wastian@inforp.com

I. Braumandl

CoBeCe, Regensburg, Germany

e-mail: info@cobece.de

M.A. West

Lancaster University Management School and The King's Fund, Lancaster and London, UK

e-mail: m.a.west@lancaster.ac.uk

fail, achieve only parts of their objectives, or pay for their success with great interpersonal tensions and conflicts – often because psychological factors are not considered in the project management process. Professional guides and reference books on the subject have become popular reads in the management book market. And increasingly, psychological topics in project management – such as leadership, people management, communication, or group behavior – are being addressed by authors. This book goes beyond the existing literature to consider the wide range of psychological aspects that are relevant in project management from both a scientific and a practical, applied perspective. Based on current scientific findings and specific case studies drawn from project management, it will attempt to provide guidelines for practice and how to optimize it in everyday project work. Based on typical problems in projects, 43 authors come together to focus on 18 different psychological topics. To help the reader apply their practical insights, all of their contributions are presented in the same manner in each chapter, using the following **structure** whenever possible:

- The problem
- The background and relevance from a psychological point of view
- Starting points for improvements.

Diagrams, tables, and case studies all contribute to making these contributions more practically meaningful and comprehensible.

1.1.1 Part A: Managing Processes

Part A deals with processes in project work and how to manage them:

Chapter 2 (Schneider, Wastian, & Kronenberg) focuses on typical project processes, the highs and lows in projects and events which force corrections or improvements in the various phases. Critical factors that influence the course of the project are examined in depth and practical ways to optimize processes are described.

Chapter 3 (Brodbeck & Guillaume) concerns itself with information processing and decision-making in projects, their consequences for everyday project work, how process losses occur, and which optimizations result in process gains.

Chapter 4 (Streich & Brennholt) focuses on communication in projects, on typical communication structures, and on the reasons for unsuccessful communication or misunderstandings. It provides clear guidelines for ensuring effective communication in everyday project work.

Chapter 5 (Winkler & Mandl) points out how knowledge management can be used to systematically influence the individual stages and ultimately the success of a project's lifecycle as a whole. It showcases successful methods for implementing good knowledge management in everyday working life.

Chapter 6 (Wastian, Dost, & Braumandl) focuses on project coaching – an effective psychological method for improving project processes and supporting the people involved in everyday project work. It describes what project coaching means, how it works, and when it can be used to support a project’s actors and ensure its success.

1.1.2 Part B: Managing the Project Environment

The focus in Part B lies on the project environment with human resource management and networks:

Chapter 7 (Moser, Galais, & Byler) focuses on power constellations and team effectiveness in project management. It identifies the required competences for project leaders, the recruitment and selection of leaders, and the management of employees’ performance.

Chapter 8 (Solga, Witzki, & Blicke) focuses on power and influence exerted in projects and the stakeholder network. It explains the reasons for political processes and political behavior in projects and describes their effect on processes and outcomes of the project.

1.1.3 Part C: Managing People

Part C highlights team and leadership-related issues in projects as well as the self-management of project leaders:

Chapter 9 (Lyubovnikova & West) applies a positive psychology perspective onto effective teamwork. Eight team processes are presented that are best for developing positive project management teams. The chapter describes the attitudes and behaviors of team members, the kind of leadership, and the nature of the activities that successful teamwork is made of.

Chapter 10 (Kauffeld, Lehmann-Willenbrock, & Grote) is concerned with the advantages and disadvantages of team collaboration in projects, presents methods for team diagnostics and development, and examines important team work parameters and the solution-oriented handling of conflicts in project teams.

Chapter 11 (Kraus & Woschée) focuses on project members’ sense of identification with and commitment to their projects. Practical examples are used to illustrate the potential for project success offered by commitment and identification – but also the dark side of these attitudes.

Chapter 12 (Wegge & Schmidt) focuses on the project leader as manager. It considers the success factors in leadership, frequent problems, and problem-solving approaches for everyday leadership challenges in projects. The authors emphasize the key role that target-setting plays in successful project management.

Chapter 13 (Weisweiler, Kuhrts, Braumandl, & Schmid) addresses the question of how a project leader can cope with the challenges of project preparation and implementation in a way that meets both the project's and individual people's goals. It recommends self-management strategies to react successfully to the conflicting pressures of costs, time, and expected results.

1.1.4 Part D: Managing Innovation and Creativity

In Part D, the focus is on the management of innovation and creativity.

Chapter 14 (Maier, Hülshager, & Anderson) focuses on innovation and creativity in projects. The phases of innovation and their characteristics are presented, factors of influence described, and actions recommended for implementation in project practice.

Chapter 15 (Traut-Mattausch, Kerschreiter, & Burkhardt) gives specific illustrations of successful and supportive methods for developing creativity when preparing projects and generating ideas. Suggestions are given for applying these methods and techniques to solve problems of varying complexity in everyday project work.

1.1.5 Part E: Managing Special Challenges: Risks and Crises, Diversity and Distance

In Part E, attention shifts to the management of special challenges – risks and crises, diversity and distance in projects.

Chapter 16 (Salewski, von Rosenstiel, & Zook) concerns itself with the management of risks and crises in projects. How and when can crises be avoided by applying consistent risk management? And should a crisis occur, who should do what and when?

Chapter 17 (Hoessler, Sponfeldner, & Morse) devotes itself to the topic of project management in international teams. It describes the developmental stages of cooperation and how to handle the “otherness” of those from other cultures. It also describes how to acquire intercultural competences to contribute to the positive design of international projects.

And finally, **Chap. 18 (Hertel & Orlikowski)** addresses the characteristics of collaboration in virtual teams, where team members rarely see each other. Which methods and approaches are advisable to ensure the success of the project when immediate personal contacts are not possible, but decisions have to be made without delay or under pressure?

All of these topics deal with factors that are important for the success or failure of projects, and they are all concerned with the people involved and their behavior.

Applied psychology can contribute significantly to the success of projects by supporting project members and improving key processes in projects.

1.2 What Is Applied Psychology?

As the overview of chapters shows, this book offers a wide range of solutions to typical problems in project management proposed by the field of applied psychology. How applied psychology works in essence, i.e. how it generates knowledge, will be discussed here. This should provide readers with an overview of the methods used by psychologists.

1.2.1 The Objects of Applied Psychology

Scientific work can be activity can be categorized by whether it is “pure science”, research aimed at studying specific questions in practice, or scientifically based practice aimed at solving problems. Natural sciences are mostly the reserve of basic science; academic engineering tends to be an application-oriented discipline, whereas the work of engineers in the professional sphere can be described as scientifically based practice.

The same applies to psychology. Here, a distinction is often made between **theoretical, applied, and practical psychology**, although there are also other designations. Table 1.1 illustrates this.

Theoretical psychology is concerned with pure knowledge – or the “**truth**” – without paying attention to whether this knowledge is of **practical benefit** to anyone. The aim is to develop the theory further and answer open scientific questions. Critics often refer to this as “ivory tower” science. Research is also

Table 1.1 Classification of psychological areas of work

	Theoretical psychology	Applied psychology	Practical psychology
Label	Psychology as science, theoretical research	Innovation activities, problem-focused research	Psychological non-research activities, methods and techniques focusing on behavior and social processes
Objective	Truth	Truth and benefits	Benefits
Origin of problems and questions	Theory	Field of application	Client or ordering party
Scope of activities	Research and education in specific psychological disciplines (e.g. general psychology)	Research and education in areas of application (e.g. organizational psychology)	Psychological practice (diagnosis and intervention)

performed in applied psychology; here, too, it is a question of knowledge or “truth”, but not for its own sake. Findings should also be useful in that they can be interpreted as answers to practical questions (Spector 2003). This leads directly to questions such as: “Useful for whom?”, which can suggest ethical and political conflicts. In practical psychology, practice is based on the scientifically founded, but routine use of existing findings within the scope of professional psychological practice. The following example illustrates this:

Within theoretical psychology, a model of divergent thinking is developed thanks to a number of experimental laboratory studies and the systematic integration of research findings; based on this concept, applied psychology develops a test to assess individual creativity, inspired by questions from the R&D departments of large technology companies. This test is then used by in the professional work of practicing industrial and organizational psychologists to select suitable engineers for the R&D departments of companies (Rousseau 2006).

1.2.2 Organizational Psychology as a Branch of Applied Psychology

Psychology has existed as a field of lay knowledge ever since people starting thinking about their fellow men and ultimately about themselves, a point in time that likely coincides with the emergence of homo sapiens about 500,000 years ago in the highlands of eastern Africa. Attention was presumably first focused on others, with implicit questions such as: Is he approaching as a friend or a foe? Will he help me hunt or does he want to snatch my prey? Is she interested in me as a potential partner, or will she reject me? Etc. Only later, mirrored by the others as it were, man started considering himself, his wishes, and his feelings. All of this is **pre-scientific psychology**. The Greek philosopher Aristotle presented a first scientific work in this field with a study of “de anima” (from the soul). Psychology then developed as a speculative, but barely emancipated science, enmeshed with theology, philosophy, and educational theory, and relegated to a supporting role. It was only in the nineteenth century that **psychology in the modern sense** emerged as an independent subject of empirical research at universities. It was Wilhelm Wundt, who was the first professor of psychology in this sense in 1879 in Leipzig. He saw himself as a fundamental researcher, and explicitly rejected application-oriented psychological research.

This young science was a success. Only a few years later, professorships in psychology were created at universities in many countries around the world, from the United States to China, and filled by students of Wundt. The subject defined itself as an empirical research **science of human experience and behavior** (Gerrig and Zimbardo 2009).

A science which professes to be able to make well-founded statements about human experience and behavior is inevitably of interest for practice (von Rosenstiel 2011). Practitioners ask questions like: “How does one recognize whether a child is

mature enough to start school?”, “Does drinking tea increase one’s ability to concentrate?”, “How can we assess whether a witness is credible in court?”, “Who out of a large group of applicants is best suited to driving a train?” Etc. Numerous sub-areas of applied psychology developed from the efforts to answer these and many other questions on the basis of empirical research. One such area was industrial psychology (Muensterberg 1912; Landy 1992) which includes organizational psychology. Organizational psychology can then be defined as the **science of experience and behavior in organizations** (von Rosenstiel 2011).

An organization, from a Behavioral Science Point of View (Pugh et al. 1963), Is a System Which Is:

- open to its environment,
- long-lasting,
- follows specific objectives,
- composed of individuals or groups,
- is thus a social construct, and
- has a specific structure, which is generally characterized by the division of labor and a hierarchy of responsibility.

Like other application-oriented practical disciplines which are based on research and science, organizational psychology and practicing organizational psychologists attempt to answer practical, applied questions (e.g. questions of project management) by systematic research or carry out practical assignments in a scientifically sound manner.

There are typically specific steps in this science-related and application-oriented practice.

Typical Steps in Application-Oriented Psychological Practice

- Determining the status quo (diagnosis) of the person and/or the situation: What characterizes the actual state or the problem to be solved? (For instance: The team does not function, breaks up into sub-groups.)
- Defining the target state: What should be achieved?
- Developing transformational knowledge: Researching the question of how the target state is to be achieved from the actual state.
- Intervening: Methods for achieving the target state in a scientific manner.
- Evaluating: Renewed assessment of the present state by diagnostic means to check whether this corresponds with the target state.

To **register the current state** and to ultimately **evaluate the result of interventions**, it is important to develop methods in organizational psychology

which are objective, reliable, valid, and acceptable (in terms of complying with valid rules and laws), and welcomed by practitioners. In the end, their implementation should also be cost-effective. These methods should focus on both the person (e.g. aptitude for teamwork) and the situation (e.g. the workplace conditions).

Transformational knowledge is ultimately based on **research** into systematic if-then relationships (e.g. if the group gets bigger, then the probability of the group breaking up increases). A systematic network of such if-then statements combines to form a theory, on the basis of which an **intervention** (e.g. reducing the size of the group to prevent it breaking up) is possible.

That leaves the **target state**. Determining this is neither the task of the application-oriented research nor de facto that of the organizational psychologist. Muensterberg (1912; Landy 1992) demanded that this be left to those “in practical situations”. Admittedly, this was making things too easy for himself, as the psychologist does share in the responsibility for the objectives to be achieved. However, the psychologist is not able to tell others what the targets should be on the basis of professional competence (Latham 2007). Determining this is a (corporate) political process, in which the psychologist can of course participate, as a member of the company, and contribute arguments, points of view, or specific experience. However, there is a great risk that as he or she is “wage or job-dependant”, the psychologist will become a tool and, in extreme cases, will do what others with little psychological expertise instruct him or her to do without question. This is where the political dimension of applied psychology and, in particular, organizational psychology comes in and where many controversial discussions start.

1.3 The Significance of Project Management

The significance of project management in economic life is increasing. This section explains the economic backgrounds, typical features of projects, reasons for the increasing significance of project management, and why psychology is so important for successful project work.

1.3.1 Change in Structural and Process Organizations

Many attempts have been made to distinguish between sciences according to whether they concern themselves with natural objects, which are relatively independent of man, or with those phenomena that were created by man (Bunge 1967). For this reason, **natural and cultural sciences** are occasionally contrasted. A distinction of this sort is significant, as natural objects are relatively **stable**, whereas those created by man are **subject to rapid change**. So we can assume that the laws of gravitation discovered by physicists will be valid for the foreseeable future, whereas laws created by man, such as the prohibition of pricing agreements between companies or of unfair competition will be subject to rapid change. **Progress in natural sciences** depends primarily on the development of better

research methods and a general expansion of knowledge. Although this also applies to cultural sciences, change in this case is also a result of sustainable change in the objects of research. Consequently, findings in the natural sciences remain valid for a relatively long time, whereas the findings of cultural sciences age and become less useful as their objects change.

Economic and administrative organizations are man-made. They **change** rapidly and, in recent years, increasingly so. The reasons for this are to be found both “within” and “outside” of companies. It is thus, for instance, a matter of finding suitable and challenging jobs for employees with a better school education, higher qualifications, and with different expectations concerning professional behavior as a result of changes in values. This can lead to job enrichment at an individual level or to sub-autonomous working groups at a group level, but it also implies changes in leadership and organizational principles. Instead of a narrow system of command and control, this entails MbO (management by objectives), the delegation of responsibility, and a reduction of the hierarchy to create a flatter organization. But there are also external forces which impose or at least propel organizational changes, such as: globalization, growing international competition, compulsory cross-border cooperation, focus on markets in eastern Europe and eastern Asia, technological leaps in particular in the fields of EDP, changing and differentiated customer demands etc. All of these demand that companies use resources more and more sparingly (e.g. lean management), increasingly become driven rather than functional organizations, ensure inner flexibility (“from palaces to tents”), and find organizational forms that are able to handle complexity on the one hand (from line organization to networks, matrix structures or project organizations) and on the other hand ensure intensive cooperation with other companies or with customers. The boundaries of organizations appear to be becoming increasingly permeable and, in some cases, are no longer clearly visible. All of these change processes are full of risks and often fail, one reasons for which is that change leaders tend to forget to involve those who have to support and live the changes (Kotter 1996; McKenna 2006). One solution to these questions and problems is project work, which offers a means of integrating people in change processes. This has made it an important object for applied psychology.

1.3.2 What Are Projects? What Are Their Characteristics?

Formal Characteristics of a Project

According to the Project Management Body of Knowledge (PMBOK; PMI 2008, p. 5), a project is a “temporary endeavor undertaken to create a unique product, service, or result”. Projects are characterized by a set target, a defined timeframe, financial, personal and other resources, a distinction from other undertakings, and a specific project organization.

Important Characteristics of a Project

- Novelty and uniqueness
- Complexity
- Interdisciplinarity
- Clear objectives (material, cost, and deadline goals)
- Open solution with permanent change, flexibility, and adjustment requirements
- Clear regulation of responsibilities (concerning strategic management, project leader, and project controller)
- Clearly defined start and end
- Limited resources (time, money, people)

We speak of a “real” project if there is a **formal project assignment** which has been decided by company managers, is set out in writing, and contains the characteristics already mentioned. These are the most important parameters of a project.

For the project leader, the person responsible for the management of all project processes, the **type of project** plays a decisive role with regard to the preparatory structuring and organization of the project. As a rule, projects are categorized according to their contents and the methods appropriate for these, e.g. construction projects, IT projects, investment projects, etc. Other dimensions used to categorize projects include complexity, project size, or novelty, to name just a few.

Complex projects, for instance, create considerable **challenges** for the whole project team, since their success depends on the team’s communication, cooperation, and cohesion (Yang et al. 2011). Different project types also require different **leadership skills and behaviors** (Müller and Turner 2007). Both short-cycle, simple projects and long-cycle, complex projects appear to benefit from autocratic leaders and well-defined product development process, whereas a participative style and the use of external information are preferred in short-cycle, complex projects (Clift and Vandenbosch 1999).

To gain acceptance in complex projects, it is essential to face conflicts and resistance, handle these with a view to the intended solution and available resources, and reconcile the interests and claims to power of all concerned “under one roof”. Complex projects, such as the merger of companies, entail extensive changes for all divisions of an organization, are very risky and associated with many fears and uncertainties for the employees of the companies concerned. That is why highly developed **social and leadership competences** are required in such projects.

Informal Characteristics of a Project

In addition to the formal characteristics, which are detailed in the project order, there are also “informal” characteristics reported by experienced project leaders. These play a special role for the perspective of this book, as they concern the psychological phenomena with which industrial and organizational psychology are concerned. They have effects on the experience and behavior of project leaders and members, project partners, employers and employees, and their organizations, and thus on project success.

Informal Project Characteristics

- Handling one’s own resistance and fears and those of other people which can be brought about by changes occurring within projects or as a result of projects
- Working under extreme time and cost pressure
- Uncertainty and handling unplanned “incidents” and changes
- Handling risk, conflict, and crisis situations
- Dependence on other groups of people involved or concerned
- Limited scope of action or choice
- Dilemmas faced by the project leader on account of limited access to human or knowledge resources
- Suitable conduct towards groups within and external to the project
- Limited access by the project leader to strategically important information or structures
- Handling of sole (financial) responsibility for the results.

Irrespective of the type of project a project leader takes on, **human resource management, self-management, and time management competences** are always called for. The same applies to project members, depending on their role and responsibility in a project and how many projects they are involved in simultaneously.

1.3.3 Where Are Projects “Positioned” and How Are They Managed?

Due to increasingly international and globalized competition, the standards in terms of a high degree of adaptability and flexibility have increased. The structures in organizations, characterized by the division of labor and responsibility hierarchies, which previously functioned well are now too rigid for these new requirements. Owing to the high complexity of the tasks and problems to be solved, collaboration in interdisciplinary teams of experts has become an essential part of everyday work. This is why there have been extensive changes in organizational structures in recent

decades. In increasingly short cycles, line systems with several hierarchical levels have been streamlined and multi-line systems (e.g. matrix organizations) introduced. Such extensive organizational changes are considered **change management**.

Components of Change Management

- Business reengineering (customer-oriented alignment of work processes, cost reduction, increase in efficiency).
- Lean management from Japan (cost reduction and customer orientation, reduction of wait and idle time and absence, room allocation, increase in effectiveness of processes and organization).
- Total quality management (comprehensive quality assurance, analysis of all production processes, integration of all employees in planning and quality assurance thanks to manuals and questionnaires, quality circles and project teams).

Project work fits well with this new context because of its high flexibility and focus on outcomes. This has made it become increasingly integrated into these structures in recent years.

Organizational change concerns strategic management and thus is an issue for **top management**, which also applies to the projects. Projects are instruments for leading a company strategically into the future. Strategic corporate management decides on the “creation” of a project. Ongoing reporting by the project leader to the strategy leaders must be in place in the divisions concerned. The basis for a successful project implementation in the company can only exist when top management has decided in favor of the project and stands behind the project leader and his or her team. It is already known from industrial and organizational psychology research that support by the relevant manager is essential for achieving goals. The same applies to the successful implementation of projects (Hoegl and Gemuenden 2001).

What does successful project management include?

According to the PMBOK (PMI 2008), Project Management Comprises the Following Process Groups

- Initiating,
- planning,
- executing,
- monitoring and controlling, and
- closing.

Managing a project means solving a complex, non-routine problem by using an open-ended approach. Project work therefore involves a collective and active learning process, which must be managed. Thus, project management also includes the success-oriented design of structures and processes in this learning process and the search for solutions to problems. This makes project work become **process work**. Apart from mastering the project's actual task under highly dynamic conditions and with complex processes, the special challenge in project management is balancing the **competing project constraints** (PMI 2008, p. 6):

- Scope,
- Quality,
- Schedule,
- Budget,
- Resources, and
- Risk.

They set the targets that have to be met and thus determine the criteria for project success. The “informal” project characteristics play a decisive role in achieving these target values. Experienced project leaders report time and again that the main problems in project management are closely related to the people involved in their projects and that projects fail when social and psychological aspects are not taken into account or are managed ineffectively. That is why this book focuses on how to manage such cases positively and successfully.

1.4 The Role of Organizational Psychology and Organizational Psychologists in Practice

Organizational psychology is an application-oriented research discipline designed to address the structures and processes in projects to develop knowledge about the management of change (Hoegl and Gemuenden 2001). Ultimately, this scientifically sound body of knowledge about change consists of a vast number of if-then statements integrated into a theory, which makes it possible to record, explain, forecast, or purposefully intervene with phenomena such as disruptions or successes in projects, based on operational i.e. measurable concepts and particular social techniques.

The organizational psychologist working in the field can draw on this change knowledge and play a significant role, as is illustrated and presented in a variety of practical examples in this book.

Practical Questions of Organizational Psychologists

These are only a few examples of the questions that could be asked by people commissioning psychological services – oriented to the lifecycle of a project:

- How do I find suitable collaborators for the planned project?
- How do I prepare these people, many of whom did not know each other previously, for the project?
- How do I regulate the relationship between the project and the line organization?
- How can I achieve a fair and appropriate regulation of the duties that project members have in the project and in their line responsibilities?
- How will the project as a whole be organized and “embedded” in the organizational structure?
- How can we reach realistic milestones in the project and how does this process take place if the project leader has to work with people who understand the specific field far better than she or he does?
- How can one ensure the necessary commitment of project members to the project without neglecting commitment to conventional tasks?
- How can one manage crises and conflicts between project members and what can one do at the objective level to ensure the project’s progress?
- What attitude is to be taken within the project toward micropolitics, the prevalence of personal goals, or even power games and scheming?
- How can the project still be managed if project members seldom come together and usually only have “virtual” digital contact with each other?
- What are the criteria for the quality of processes within the project and ultimately for the project result?
- And what is the task of the project leader in all of this?

The list of questions could be expanded ad libitum. In the specific work of organizational psychologists in projects or supporting project processes, it is in fact frequently much more detailed and extensive. This book tries to address these questions.

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Part I

Managing Processes

Project Lifecycles: Challenges in and Approaches to Process Design from a Psychological Perspective

2

Michael Schneider, Monika Wastian, and Marilyn Kronenberg

Abstract

The purpose of this chapter is to explore useful psychological approaches for process design within the various phases of a project's lifecycle. The pitfalls encountered during projects will be examined in order to illustrate how project leaders can develop appropriate strategies which they can, in turn, use to make their projects more successful.

2.1 Challenge: Seeing the Unforeseen

Projects represent change and stand for something new. They bring in novel attitudes and intentions and introduce new goals, since a project is a “temporary endeavor undertaken to create a unique product, service, or result” (PMBOK; PMI 2008, p. 5). Projects seldom run smoothly or according to plan. Rather, projects tend to run in an ‘up and down’ manner, as a project leader within the automobile industry put it who had been in charge of a project entitled ‘Internal Environmental Prize’:

Example

“This was a project that took place across the entire company to honor employees whose activities contributed significantly to protecting our

M. Schneider
Ludwig-Maximilians-University Munich, Department for Sociology, Munich, Germany
e-mail: schneider.michael@lmu.de

M. Wastian (✉)
Institut für Organisationspsychologie, Munich, Germany
e-mail: wastian@inforp.com

M. Kronenberg
Sanofi Pasteur, Paris, France
e-mail: Marilyn.Kronenberg@sanofipasteur.com

environment. In the beginning, the project seemed very important – however, the amount of support that it actually received from higher levels of management did not seem very strong in the eyes of the employees who planned and conducted that project. For example, budgets were cut and political sensitivities came into play which could not be managed. That caused some ‘highs’ and ‘lows’. On one hand, it was motivating to work on such a project. On the other hand, various factors damaged this euphoria. For example, internal moods played a role, as did the company’s financial situation” (Project Number P 34).

This quote illustrates the kinds of challenges project leaders are typically confronted with. They not only have to deal with their own sensitivities and feelings of resistance, but also with those of others who are involved in the project. These project leaders need to motivate themselves and others to overcome various **challenges**. They all work under time pressures, deadlines, and tight budgets. They seldom have the support they need, and they often do not possess strategically important information or resources. In short, projects hardly ever go as planned, and project leaders often have to maneuver themselves and others through a landscape that is confusing and full of risk.

Planning and steering the various project phases and creating the right timelines place substantial demands on the project leader according to the IPMA Competence Baseline, ICB 3.0 (Caupin et al. 2006). This ability to steer projects successfully also involves knowledge and the adept application of **process models** which divide the project into phases and determine timelines. Such process models describe activities, milestones, and results within the individual project phases. All of these differ depending on the sector, industry, or specific organization in question.

These process models are of major importance for project planning and monitoring. The project leader should check the milestone results for each phase of the project, and if necessary, introduce a **feedback loop**, i.e. a corrective mechanism that notifies affected parties when a milestone has not been achieved (PMI 2008). Nevertheless, things look different in the real world. Milestones are either not carefully monitored or going back to an earlier phase is skipped due to organizational politics. Reluctance concerning necessary change is hardly surprising, since such phase resets, i.e. via feedback loops, relate to longer running times and low engagement levels during the course of the project (Wastian and Schneider 2007a). This is so because the success of the project, and therefore that of the project leader, is not measured according to a fixed project deadline when all is said and done. The question remains to be asked: How can an organization and project leaders avoid feedback loops at the expense of the deadline without endangering other aspects of the project (performance, costs, customer satisfaction)?

Several answers to this question can be found in **studies on project lifecycles** which have long been the focus of innovation research. In this chapter, the risks will be identified and successful responses to these risks explored, based on the systematic analysis of 34 German projects (Wastian and Schneider 2007b) and the data derived from 14 American innovation projects at private and public organizations (Van de Ven et al. 1999). Not only the typical phases of the project development will be explored for this purpose, but also those phases critical to success that precede them.

2.2 Background and Relevance from a Psychological Perspective: Dealing with Complexity During Projects

2.2.1 Project Lifecycles and Phases

The analysis of typical project phases in the mentioned German studies (Wastian and Schneider 2007b) can be consolidated into a **6-phase process model** (Fig. 2.1) based on the concepts found in innovation theory. The model begins at the phase marked **Problem Definition**. This phase deals with the discovery, construction, and identification of the problem statement. This is followed by **Idea Generation**, a phase in which a pool of ideas is created in order to identify possible solutions. The next phase, **Decision Making**, allows participants involved in the process to ascertain whether the ideas should be implemented or not. If so, then the **Development** phase begins, followed by the **Implementation** (e.g. a product introduction measured against project goals). If applicable, **Routinization** (e.g. mass production) would then result.

Empirical evidence demonstrates, however, that innovation projects seldom proceed in a simple step-by-step process (Anderson et al. 2004; West and Farr 1990). Rather, they are characterized by feedback loops and non-linearity in both the German (Wastian and Schneider 2007b) and US studies (Van de Ven et al. 1999) cited here.

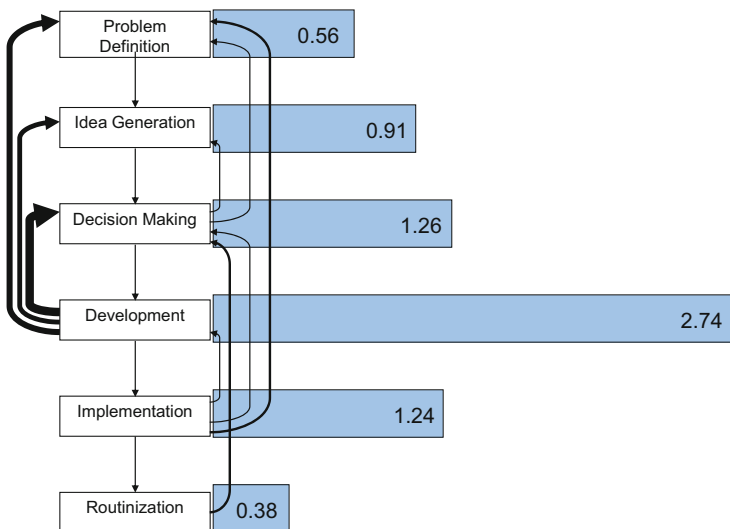


Fig. 2.1 Project lifecycle diagram (based on Wastian and Schneider 2007b). The figure shows that projects do not run in a linear fashion, but rather in various phases which intertwine and often consist of several corrective feedback loops. This frequently causes resets, i.e. forced returns to a previous phase. The bold feedback loops are indicative of how often each feedback loop was repeated in the 34 projects (i.e. 1,2,4,5, or 7 times)

2.2.2 Enablers and Barriers in Relation to ‘Highs’ and ‘Lows’ in Projects

Whether or not a project runs according to plan depends on the presence of enabling factors and barriers, as depicted in Table 2.1. Taking these barriers into consideration or creating such enabling factors represents a major challenge in project management.

Interestingly enough, all these factors play different roles in the projects examined (Wastian and Schneider 2007b). While some of them (e.g. coordination and external conditions) appeared in **all six project phases**, others only appeared in **specific phases**. For instance, it was found that individual variables such as motives and interests were problematic only in the phases Problem Definition and Development. Phases were also distinguished in terms of the **variety of enabling factors and barriers** present. While nearly all factors impacted the Development phase according to the project leaders’ reports, the Problem Definition was not impacted by several of the factors found in Table 2.1 (i.e. internal conditions, communication and cooperation, or the competences and behavior of project participants that did not affect the Problem Definition phase).

It is interesting to note that **coordination** was often described together with **temporal factors**, like delays, tight deadlines, but also synchronization requirements (Wastian and Schneider 2007b). For example, time constraints in the advanced phases of Development or, respectively, Implementation were perceived as positive, because they significantly accelerated the completion of the project. In contrast to this, there were complaints about other factors, i.e. excessively long depreciation periods for industrial equipment, which prevented the purchase of new production platforms or technologies that were needed to manufacture new products.

The issues depicted in Table 2.1 represent levels of various ‘highs’ and ‘lows’ during projects [Causes of ‘Highs’ and ‘Lows’ during projects]. Factors such as coordination or external contexts, as well as areas of personal interest and motivation of the involved parties were associated with both ‘highs’ and ‘lows’. Motivation and interest outweighed all other factors that increase ‘highs’ because of the initial excitement typically reported within the Idea Generation phase. Time-bound problems, such as delays, and financial factors, like the search for sponsors or cost pressures, regularly caused more ‘lows’. The prospect of a project’s successful completion had a marked positive influence on the number of ‘highs’, especially in later phases. Apart from the conditions represented in Table 2.1, which were associated with both ‘highs’ and ‘lows’, certain aspects proved to be of essential importance. Unclear roles and lack of ownership within the project team were associated with the ‘lows’, whereas the active offering of input, knowledge etc. led to more ‘highs’.

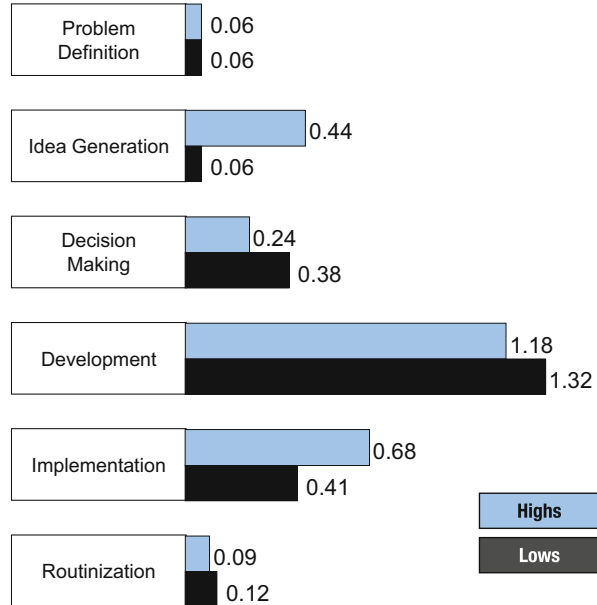
Table 2.1 Influencing factors in projects (based on Wastian and Schneider 2007b)

Influencing factors	Examples of enablers and barriers
External context	External conditions determined by stakeholders (e.g. external providers, competitors); public opinion and press; laws and regulation; project contracts/terms and conditions; external markets and industry in general (e.g. demand and market share potential) and macroeconomic factors; infrastructure
Internal context	Conditions set by stakeholders within the organization (sponsors, management, other departments, colleagues) or by project participants themselves; availability of resources (personnel, know-how, materials, instruments); internal project structures
Coordination	Coordination and, if applicable, monitoring of structures (stakeholders, roles and responsibilities, organization, infrastructure), processes (commissions, workload, milestones, project progress, tasks, meetings, learning), and project outcomes; resource management (personnel, materials, instruments, knowledge, information); coordination of planning and conceptual work
Temporal factors	Targets and deadlines; delays; speed; time pressure; temporal resources, time management, forecasting, working hours; future potential or sustainability of the project or its results; (dis)continuity; (de)synchronization of processes, etc.
Financial factors	Economic factors influencing the project (money, costs, price, return, budget, financing, investments, offers, turnover, profit, fiscal factors)
Motives und interests	Intrinsic motivation of parties involved; goals that serve their personal interest and political motives, which can work for and against the common good of the project
Expectations	Expectations held by those involved in the project or by external stakeholders regarding the way the project is run, its results, etc.
Competences and behaviors	Competences (knowledge and skills), work practices and project related behaviors as well as strategic approaches taken by one or more of the parties involved
Quality and progress	Quality of the project, project management, process mapping; project execution, i.e. results; overall progress; a breakthrough after introducing improvement plans or corrective measures
Communication and cooperation	Communication, situations involving cooperation, and overall extent, type (i.e. negotiations, discussions, mails, terminology, operating definitions, communication rules), and quality of the communication and cooperation; attitudes and behaviors in relation to communication

2.2.3 Project Phases and Their Significance

The previous sections looked at typical **phase-specific challenges and differences** to be considered in project management. Figure 2.2 demonstrates that ‘highs’ and ‘lows’ have different significance for the various phases of the project lifecycle. The Development phase proves to be the most ‘eventful’, having the most ‘highs’ and ‘lows’. Implementation as well as Decision Making also represent critical

Fig. 2.2 Average frequency of ‘highs’ and ‘lows’ in project phases (based on Wastian and Schneider 2007b)



phases in projects, while Problem Definition and Routinization were hardly mentioned by the interviewees. Idea Generation is strongly characterized by a sense of excitement.

- It became evident that major difficulties appear in the later phases – unless the respective projects were discarded at the outset.

In addition, certain phases were repeated unevenly (Fig. 2.1). The frontrunner was the **Development phase**, which was repeated most often in the projects under investigation. This phase proved to be the most complex, not only because it was the starting point for most feedback loops, but also because it needed further differentiation, since it consisted of various sub-phases.

The major importance of Development is not surprising, as it is known as a key phase not only in innovation research (Van de Ven et al. 1999), but also in project management. However, the results of our research did bring some surprising issues to light: Interviewees did not, as expected, report the three phases which precede Development, which contrasts with the significance of these phases for the success of projects or innovations.

- ▶ Apparently, there were projects that did not go through the phases of Problem Definition or Idea Generation. However, it was not possible to skip Decision Making. Innovation projects and non-innovation projects were significantly distinct from one another (Wastian and Schneider 2007b): Research projects as well as product and process innovation often went through more **phases of Problem Definition** and Idea Generation than non-innovation projects, like testimonials, planning, or acquisitions. However, not every innovation project started with a more or less elaborate Problem Definition.

The First Step Is Always the Hardest: From Problem Definition to Decision Making

Even if the people in charge of the projects refer to a Problem Definition phase, it is often not clear to themselves or their sponsors which issues the project is trying to solve or at least clarify:

Example

“This project dealt with the analysis of a traffic development plan. . . actually, when we were assigned to the project, it was not clear what the sponsors wanted us to achieve. We had asked a few questions and then made a proposal which was not very specific. We often had to deal with the problem that the sponsors themselves did not know what they wanted from us. We had to be willing to take risks and develop something in the end that we found good and could get behind. We were often unsure if we had really met the sponsors’ expectations or not” (Project number. P 29).

Such **vague ideas** regarding the problem and the concrete needs, as seen here between the sponsor and the project members, seem to be the standard and not the exception (see also Van de Ven et al. 1999). An inadequate understanding of the problem and an insufficient analysis of the problem and relevant needs are **major causes for delays during projects** (Wastian and Schneider 2007a). The resulting levels of low engagement and corrective feedback loops during the Development and Implementation phases become evident when surrounding conditions, specifications, or customer demands are not adequately taken into consideration.

It can indeed be part of the strategy to give **insufficient or inaccurate information** during the Decision Making phase, because external and internal stakeholders must be won over. In the projects investigated, early excitement was dominant during the Idea Generation phase, whereas skepticism characterized the Decision Making phase. Furthermore, the project leaders or initiators often experienced negotiations with sponsors and other stakeholders as unpleasant and difficult (Wastian and Schneider 2007b). It is therefore not surprising that the proponents of a particular idea overemphasized the expected benefits in their plans and proposals in order to secure capital or resources (Van de Ven et al. 1999).

Information biases made worse by **communication problems** during Decision Making proved to be time bombs, which in later phases, especially in the Implementation phase, caused more ‘lows’ and an increase in the number of feedback loops (Wastian and Schneider 2007a). In a related finding, most feedback loops emerged in the Development phase and reverted back to the Decision Making phase (compare Fig. 2.1).

- ▶ An overly optimistic representation of time targets is particularly detrimental as evidenced by American studies (Van de Ven et al. 1999) in which it was shown that development time lasted longer than the scheduled investment period. This led to a complete failure of the project when the resource sponsor was no longer willing to provide additional financial means to finish the project.

The **earlier or preceding phases** would enable decisive approaches for **crisis prevention** and therefore provide proactive, more seamless, and successful project management.

Development: A Never Ending Story?

Figures 2.1 and 2.2 show that the Development phases experience the most activity of ‘highs’ and ‘lows’ and also require the highest number of feedback loops. These difficulties during the Development force us to look for new solutions, make new decisions, or challenge earlier decisions. A wide range of factors was often responsible for such **setbacks** in the depicted projects, for example when **weaknesses in the projects** or **quality defects** appeared, when **external conditions** changed, or when **coordination problems** occurred (Wastian and Schneider 2007b). This caused outright crises which required a change of criteria. That meant that the initial planning and success criteria needed to be re-negotiated (second Decision Making phase). As a result, new conflicts between the internal innovation managers and external resource controllers were destined to occur. While the latter tended to rethink the investments made, the innovators saw the crises as indication that the changes had not yet been fully embraced (Dornblaser et al. 2000). The Development phase was clearly marked by such conflicts of interest, disproportionate influencing possibilities, and a constantly changing environment coupled with shortcomings in the project’s pre-coordination. Furthermore, previously unnoticed time problems became vicious circles due to the path dependencies of the setbacks (Van de Ven et al. 1999). The ‘highs’ and ‘lows’ experienced during the critical phases of the Implementation phase may be explained by the factors found in Table 2.1; however, it is the coordination which determines the increased number of these ‘highs’ and ‘lows’ – e.g. when personnel needs to be trained or scheduled, information or materials need to be obtained, or processes must be adjusted (Wastian and Schneider 2007a). That means:

- ▶ In order for project management to be successful during the Implementation phase, all of the influencing factors found in Table 2.1 need to be considered and managed carefully. However, the most critical factors for project leaders during the Implementation phase are the proper handling of coordination challenges.

Unlike in the case of the preceding project phases, no specific triggers for the time-lapsed appearance of ‘lows’ or feedback loops could be identified in the Development phase (Wastian and Schneider 2007a). Thus, **solving the resulting problems** is more promising than their prevention.

- ▶ The ability to solve the problems does not depend on the program leader’s coordination talents alone. It was demonstrated that the most significant problems occurring over the course of the project could only be resolved by the **direct intervention of the investors and top management** (Van de Ven et al. 1999).

The influence of management and/or the investors can be explained by the diverging resources and development timelines after setbacks. Resources and timetables must be adjusted in order to grant “Grace Periods” for innovation (Van de Ven et al. 1999). Usually, it is the management or the financial sponsors who possess decision-making authority over these resources and timelines, not the project leader. As mentioned in the previous section, the **lack of information** from the earlier phases becomes evident here, and the project is slowed down due to **additional feedback loops** in new rounds of decision-making.

The Later Phases: Top or Flop?

The further a project progresses, the less freedom and flexibility there is for project management and the project members. If events in earlier phases have not been proactively planned for and crisis prevention measures have not been taken, then the freedom to act within the Development phase is reduced to merely being able to react to challenges in a timely fashion. This degree of freedom and flexibility was characterized by the project leaders we interviewed as having been reduced to virtually zero (Wastian and Schneider 2007a). If no improvements were needed, then routine final tasks took place, such as commissioning equipment or producing documentation. The success of the project can hardly be influenced anymore at this stage. If any possibility exists at all, then it would be to **demonstrate the use and utility of the project results**, e.g. a presentation to the financial sponsor, attendance at a trade fair, the creation of publicity, or other marketing activities. When the project’s output is in routine use or introduced in the market, it is no longer considered part of the project work.

US studies also demonstrated that projects ended as soon as the innovation was implemented or resources were used up (Van de Ven et al. 1999). It was the **investors and top managers** who then **labeled the innovation a success or**

failure, although their labeling was often incorrect. They similarly influenced the fate of the innovation itself and the further professional development of the project team members.

If Routinization, i.e. sustained implementation or marketing, has not been excluded from the very beginning, project leaders should not only be interested in costs, deadlines, and quality, but also in how to communicate the value of their project's results and successes for the financial sponsors and management.

- ▶ It is interesting to note that the usefulness and value of the project's results in many innovation projects were first mentioned by or with the project leader, if at all, during the Implementation phase (Wastian and Schneider 2007a).

Furthermore, organizations and project leaders apparently do not take the opportunity to learn how to improve projects for the future (see also Dornblaser et al. 2000). Just one of the interviewed project leaders described evaluation loops, in which the status of the project and the possibilities for improvement were reflected upon during the course of the project (Wastian and Schneider 2007b). A systematic approach and utility of "lessons learned" seldom occurred after projects were completed.

2.3 How to Improve: Shape, Convince, Consider

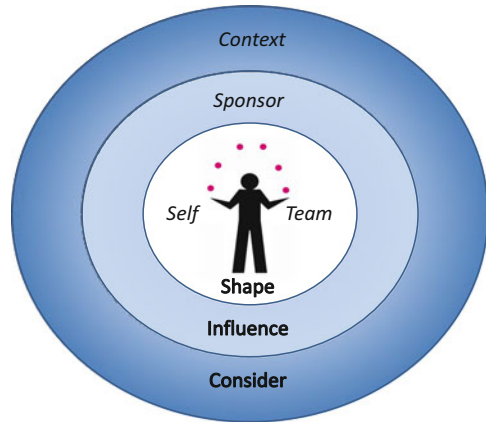
As mentioned in Sect. 2.2, the freedom and flexibility to act diminishes continuously over the course of a project. In order to avoid unnecessary feedback loops and delays, potential starting points for targeted interventions must be identified and implemented, ideally **before the actual commencement of the project**.

Table 2.1 shows the most important factors which influence project lifecycles. Project leaders are able to control some of these factors directly. Other factors create conditions which they must consider carefully, unless they are in contact with sponsors (e.g. top management) and can influence them to change conditions and set the stage as required. The strategies by which project leaders can make adjustments – **shape, convince, or consider** – depend on the sponsors' susceptibility to persuasion and the project leaders' ability to influence.

2.3.1 Strategic Approach: Shape

Figure 2.3 serves to illustrate this point: Factors which refer to the tasks, behaviors, and attitudes of the project leader and the team members can be influenced by project leaders despite their often limited formal power (e.g. also without disciplinary rights). This relates to the factors of **coordination, competences and**

Fig. 2.3 Project leaders' strategic opportunities regarding direct, indirect, and non-controllable influencing factors during projects



behaviors, communication and cooperation, which also determine the **motivation** of the project teams.

Coordination

Coordination represents an important task of project management and requires certain competences which can be acquired in **project management training** (Caupin et al. 2006). The PMI (Project Management Institute) and the IPMA (International Project Management Association) have set common standards for qualifying project managers. **Methods and tools** for managing coordination tasks are described in project management literature (e.g. PMI 2008).

In the most complex of all phases – the Development phase – but also during the Implementation phase, a variety of roadblocks for coordination and time planning need to be anticipated. These are usually delays, changes in technical specifications or the general situation, or new personnel. Efficient project management practices are characterized by their insistence on **analyzing potential weaknesses** in the early project phases (for example through discursive processes or scenario planning) and by heightening flexibility and degrees of freedom for later phases (for example, by ensuring the presence of resources and influential support for complications or unexpected events). The more complex the projects are, and the less experience the team members have with the project tasks, the more advisable project coaching becomes.

Furthermore, project team members should have binding goals with corresponding milestones (Chap. 12, Wegge & Schmidt). At the same time, it would be wise to create controlling mechanisms and on-going performance reviews with the option to adjust these goals and objectives or to rethink them when they seem unrealistic or no longer meaningful. Such repetitive evaluation processes also support strategies to **minimize unknown risks in innovation processes** and therefore also support risk management endeavors.

Setting deadlines has proven to be an effective way to deal with **temporal coordination factors** (Ariely and Wertenbroch 2002).

- ▶ The project leader should encourage new ideas regarding the right timing of contributions and tasks at the beginning of the project. If these ideas come too late, they are more harmful than helpful and get in the way of the project's completion (Ford and Sullivan 2004).

In software development, it was found helpful to create times (for example, a period between 10:00 a.m. to 12:00 p.m.) where the project team members should not be disturbed, interrupted, or approached in order to reduce their subjectively felt time pressure (Perlow 1999).

Competences and Behavior

Project work requires a variety of **competences** which are described in the IPMA Competence Baseline, ICB 3.0 (Caupin et al. 2006). The ICB 3.0 differentiates between “technical competences” (e.g. dealing with risks and opportunities managing stakeholders, information and documentation during projects; time-bound and phase-bound project planning; communication) and “behavioral competences” (e.g. leadership; openness; creativity; values; the ability to coach, negotiate or resolve conflict) as well as “contextual competences” (e.g. project-, program- and portfolio orientation; personnel management).

Even for highly qualified and experienced project leaders, the abovementioned competences, including the ability to manage oneself, are very challenging and complex and require depth and maturity. Acquiring these competences cannot simply be done by learning in project management training or standard employee development programs, because such programs are usually one-off training events and held separately, detached from the reality of project work. The uniqueness of the conditions found in projects allows for only a limited amount of learning. Supplemental training measures that are practice-oriented in nature and directly linked to a current project, like real-time project coaching or team coaching, lend themselves very well to developing these competences further in project leaders and their teams, because these measures are not only economical and directly related to the project itself, but also allow themselves to be seamlessly integrated into the project work itself. These **measures** can be used to **support the development of leadership competences**, which in turn can have a positive impact on the team's motivation and commitment.

The members of the project team often change during the course of a project, especially in the Development phase, and consultants or external advisors are brought in and taken out of the project (Van de Ven et al. 1999). This offers both the team and the organization great opportunities for learning – a yet unemployed resource in many organizations (Dornblaser et al. 2000). Therefore, **learning transfer** should be an integral part of the project lifecycle. Various methods found in knowledge management systems and systematic reflection like project coaching are uniquely suited to this task.

Reflecting on the “lessons learned”, even after the Implementation phase, builds competences in individuals and organizations. The shortcomings observed in the

Problem Definition phase, namely a lack of awareness or inadequate analyses (Sect. 2.2), can be corrected using **creativity techniques**. Such techniques can also be used during the Idea Generation phase.

Carefully **selecting team members** and external consultants who already possess the desired competences, skills, and behaviors is another way to secure **successful project management** in addition to building and developing these traits in existing project team members. This is especially important when training budgets have been reduced or even cut. Often, project leaders are not allowed to select team members themselves. However, it is still important that they analyze and understand exactly which competences are needed for the project, so that they can properly inform and influence management to make appropriate decisions regarding project team staffing (see recommendations in Chap. 7, Moser, Galais & Byler). Therefore, project leaders should make themselves familiar with human resource management instruments and procedures before the project begins. For instance, many organizations use competence models to describe the competences needed for various jobs and positions. By comparing these models with the competences he or she requires in the team, a project leader can use these models as guidance for selecting team members and can lift some of the language found there in order to better influence management regarding the proper selection of project team members.

Communication and Cooperation

Communication (Gemünden and Lechler 1997) and cooperation (Wastian and Schneider 2007b) represent key factors for the success of project management. There are many chapters dedicated to these topics in this book. We will therefore now focus on the phase-specific challenges found in project lifecycles as described in Sect. 2.2.

Various **team development measures** conducted before the commencement of a project have proven to be very useful in laying down solid foundations for good communication and cooperation. This is seen as something that can and should be done in addition to developing competences as previously mentioned.

Our research shows that most feedback loops occur in the Decision Making phase, in which more ‘highs’ than ‘lows’ are to be expected (Sect. 2.2 and Fig. 2.2). Although these phases were described by the interviewees as frustrating rather than motivating, the successful projects were characterized by a robust and thorough Decision Making phase (Wastian and Schneider 2007b). Processes ensuring **open and candid discussions** where various, even opposing, views could be debated early on proved to be beneficial.

2.3.2 Approaches for Improvement: Convince

Usually project leaders' power is limited, and they have to perform on a stage that is set by stakeholders who interface directly with the project team. It is they who determine the scope of the project, its context, objectives, resources and constraints. Accordingly, convincing powerful stakeholders must be the strategy of choice for project leaders.

- ▶ Top management (Gemünden and Lechler 1997) and financial sponsors (Van de Ven et al. 1999) play a key role in the success of projects. Project leaders need to be able to influence these stakeholders effectively in order to communicate all that is needed to ensure the success of the project (e.g. **dedicated staff, instruments and materials, financial resources, appropriate timelines**).

Stakeholders and Their Interests

As described in Sect. 2.2, major issues arise which can seriously jeopardize the success of the project, namely not communicating the project needs or failing to keep stakeholders appropriately informed.

In order to ensure success, project leaders should begin as soon as possible, preferably already before the commencement of the project, to influence stakeholders, letting them know which resources are needed and which timelines are feasible. Influencing strategies and tactics are needed of course throughout the entire project until its full realization. Thus, the following can be recommended:

- ▶ The project leader must clarify, know, and understand the **motives, interests, and expectations of important stakeholders**. This is essential in order to prevent the risk that an individual stakeholder might not see his/her interests represented and therefore boycott the project.

Project leaders should therefore identify and analyze stakeholders as early on in the process as possible. Since tools and procedures of stakeholder management typically used in project management are not sufficient to capture important psychological factors (e.g., basic motives and needs, personality, hidden agendas, dynamics in communication, cognitive aspects), seeking the support of psychological project coaches is recommended.

Stakeholders' expectations can change. Moreover, innovation research shows that the evaluation criteria of resource controllers and innovation managers shift in opposite directions over time: Resource controllers focus on long-term results (e.g. profit, market success) at the beginning of a project, then emphasize process criteria (e.g. meeting targets and deadlines), and finally evaluate the project in terms of direct input criteria (e.g. costs, competences, resources); innovation managers' priorities develop in a reverse sequence (Dornblaser et al. 2000). Since resource

controllers usually have more power, this diverging shift may result in a mismatch between the resources provided and the resources required, thus draining the project of resources before it comes to a successful end.

Therefore, stakeholder management should not remain a one-off endeavor at the beginning of the project, but rather become a regular routine throughout its entire course. Project leaders should pay special attention to the stakeholders' criteria, as sponsors can influence the fate of projects due to their powerful and influential position.

- ▶ It is particularly important to identify and communicate the threats and opportunities of the project in the **Decision Making** phase in order to realistically plan its resources and timelines.

Furthermore, conflicts can be avoided or de-escalated by **involving the stakeholders** repeatedly, asking for their input and confirming what their interests and motives are. Giving customers a more active role in Problem Definition and Idea Generation can significantly increase levels of creativity and the potential for new ideas within the organization (von Hippel 2005).

Reflection and Communication of Potential Risks

Project leaders would never dream of revealing all the risks and threats a project entails in a brutally honest fashion without endangering their own project lead. However, downplaying the risks or the needed resources, timelines etc. would certainly doom the project (and the project leader) to failure, because not enough of these resources would be available to bring the project to successful completion (Van de Ven et al. 1999). Therefore, the project leader should carefully analyze the **risks and potential of the project** and create an influencing plan to ensure that the resources can be properly planned for and secured. This approach minimizes risk and maximizes the likelihood of the project's success. This type of analysis also enables project leaders to articulate additional advantages which may not be directly related to sales or the value-add of project results. An example of this could be a first-time alliance with a strategic partner or the possibility to build on important additional competencies.

The realistic representation of the risks as well as the early and continued **tracking of expectations and evaluation criteria** reduces the danger that additional resources that were not planned for would be requested later on in the Implementation phase. Moreover, deviations can be recognized and responded to immediately, thus preventing the project from struggling or running into a vital crisis. Continuous reflection indeed offers even more benefits. If project leaders intentionally plan to gather and re-confirm expectations and evaluation criteria, then they can legitimately justify the need for other resources and changed timelines. As a result, the project's goals and activities can then be adjusted as required by consulting the people involved, so that the stakeholders' expectations and evaluation criteria are met in full.

For the project leader, the art of influencing management, financial sponsors, and other important stakeholders in the Implementation phase consists of being able to give all of them the impression that each of their **expectations has been successfully met**. Systematic, continuous reflection lays down the foundations for this. During presentations to stakeholders, the project leader should mention the expectations and, on the basis of the evaluation criteria, show how and to which degree they have been fulfilled.

2.3.3 Strategic Approach: Consider

Even though there are aspects which the project leader can steer by influencing key stakeholders, there are indeed some factors that are beyond his/her control. These factors include **external conditions** (e.g. laws, regulations, market conditions) and some **temporal factors** (depreciation periods, maturity timelines for funds, time-zones), all of which complicate the coordination of global teams.

The project leader's strategies must take these aspects into consideration, since he has no direct influence over them. This can be done in the form of **risk analyses** which need to be conducted throughout the entire project (Caupin et al. 2006). There are various checklists which name important elements for conducting **risk management**. One of the components of risk management is the Project FMEA (Failure Mode and Effects Analysis), in which possible failures, disruptions, and resulting risks are identified and evaluated beforehand in order to develop an early warning system and put in place potential countermeasures. Additional approaches are described in common project management literature (e.g. PMI 2008).

Research suggests that it is beneficial to engage in **systematic reflection** with the project teams, key stakeholders (e.g. management), and, where appropriate, external experts. Team diagnostic instruments can be used for example to help the project team and all stakeholders become aware of and understand the context of the project.

Such reflection reduces the risk of overlooking important aspects. In addition, it makes the involved team members and stakeholders aware of the critical issues impacting the project. This allows for the ability to handle these issues appropriately, decide on necessary adjustments, and accept difficult change or failed expectations. If, for example, resource bottlenecks occur, it is more likely that the demands for additional resources will be accepted and met in such cases. Another example could be that delivery problems arise or that the customer requires other technical specifications. The project leader can gain acceptance and support for the necessary changes, depending on the degree to which management and stakeholders had been properly informed and involved early on.

2.4 Conclusion: 'The Hard Stuff Is the Easy Stuff and the Soft Stuff Is the Hard Stuff.'

It is one thing to design a project plan, allocate resources, map processes, create work packages, and design workflows. It is quite another thing to lead and manage the project stakeholders and the team members through the various phases and processes of the project.

Research supports the notion that project leaders need to have social and emotional competences and a good repertoire of soft skills (skills that enable them to shape, influence, and consider) in order to successfully manage not only the 'hard stuff' of projects, but also the 'soft stuff' (i.e. resistance, organizational politics, team members' 'highs' and 'lows'). Such competences and soft skills are characteristic for successful project managers (Müller and Turner 2010) and should therefore be developed in order to make it more likely that projects are completed on time, within budget, and with higher levels of employee engagement. Real-time coaching and team development measures during projects are two key interventions that can increase social and emotional competences and thus contribute to the project's success rate.

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Felix C. Brodbeck and Yves R.F. Guillaume

Abstract

Processing information and forming opinions pose special challenges when attempting to effectively manage the new or complex tasks that typically arise in projects. Based on research in organizational and social psychology, we introduce mechanisms and strategies for collective information processing which are important for forming opinions and handling information in projects.

3.1 Facing the Challenge: Decision Making and Problem Solving in Projects

Activities in projects differ from the tasks performed in line organizations in several aspects. During projects, new, complex, and ambiguous tasks have to be managed within limited periods of time and with limited resources. Mobilizing and integrating knowledge resources from various sources distributed across different people is also of great importance in project work. It is the basis for collective opinion forming, decision making, and problem solving.

Depending on the requirements of each task, employees from different corporate divisions and levels of hierarchy can be involved in a project, as can external experts or advisors. Project teams are therefore often composed of people with different knowledge, areas of expertise, occupations, functions, and interests (high diversity). Organizations expect such project teams to use the diversity inherent in

F.C. Brodbeck (✉)

Department Psychology, Ludwig-Maximilians-Universität München, Munich, Germany
e-mail: brodbeck@lmu.de

Y.R.F. Guillaume

Work and Organisational Psychology Group, Aston Business School, Aston University,
Birmingham, UK
e-mail: y.r.f.guillaume@aston.ac.uk

them effectively in order to ensure successful decision making and problem solving in highly complex circumstances or for the development of innovative products and services.

The following fictional case study illustrates some of the problems which typically occur when handling collective information and forming opinions within projects. For the sake of simplicity, the case does not consider multinational and joint projects.

Example

The Project

The “Smith” company wants to expand its production capacities. A project group, consisting of Dr. John Wagner, Anne Miller, and Dr. Dick Hagen, has been tasked with finding a new production site. Dr. Wagner is the Chief Financial Officer and holds a doctorate in business economics. Mrs. Miller is head of the human resources department. She has a Master’s degree in psychology and also serves as the equal opportunities representative of the organization. Dr. Hagen is the Chief Production Manager of the company, with a doctorate in engineering. The project group was given 6 months to find three suitable locations and present the best alternative to the company’s executive management.

The Project’s Progress

Due to conflicts experienced in former shared projects, the group members decide to work by themselves as much as possible. It is agreed that each of them obtains information about the advantages and disadvantages of each of the possible locations A, B, and C. The group is to meet again in 10 weeks to compare results and choose the best alternative, for which purpose each group member will present the location they think is best.

In the meeting, Dr. Wagner and Dr. Hagen favor location B, whereas Mrs. Miller’s favorite is location C, but Dr. Wagner and Dr. Hagen soon manage to convince her of the advantages of location B. Mrs. Miller volunteers to prepare a portfolio about location B to be sent to the company’s management.

The Project’s Outcome

The management is impressed that a recommendation is presented after only 3 months. Since they consider Dr. Wagner, Dr. Hagen, and Mrs. Miller to be their best employees and trust their judgment, location B is chosen. The CEO also reads the portfolio, which confirms his belief that location B is the best. One year later, however, an emergency meeting is held, as location B is falling far short of the expectations.

The case study identifies typical challenges that may occur when project teams have to mobilize and integrate information and expertise:

- poor mobilization of the available knowledge resources,
- process losses due to restrictions, lack of process progress due to insufficient stimulation,

- insufficient investments into the creation of collective knowledge (so-called transactional knowledge system),
- poor demonstration of plausible/right solutions,
- groupthink,
- disproportional weighting of shared over unshared knowledge (so-called hidden profiles).

The following sections will discuss these and associated challenges in more detail.

3.2 The Psychology of Decision Making and Problem Solving in Projects

The aforementioned challenges are typically not obvious, neither in the case study nor in reality. They will now be discussed from a psychological point of view and in relation to the case. Interventions and practical implications will be discussed in Sect. 3.3.

3.2.1 Mobilizing Knowledge Resources

The collection and coordinated integration of knowledge, information, and new ideas can be performed individually (i.e. individual activity) and collectively (i.e. several persons work together in a group). Due to the limited information processing capacity of individuals, a collective consisting of several persons can draw on more and more diverse knowledge resources than any single person. A central question in group research is therefore whether and how a project group, compared to an individual or a similar number of individuals working on their own, transforms this resource advantage into actual performance advantages. Compared to individual information processing, process losses and process gains can emerge in collective information processing.

- ▶ An important question for project management is thus to determine which conditions lead to process losses and which lead to process gains.

In more practical terms, the question is which combination of individual and collective work is most effective.

Process losses while handling information occur when the individual knowledge of project group members is not sufficiently mobilized. Such process losses can be attributed to motivational losses or coordination losses.

Motivational losses among project members (e.g. social loafing, low performance standards) can impact any individual work-related behavior in projects, such as the sharing of information or communications with peers. It is therefore

important to promote individual people's motivation to share their knowledge with others (an obligation to provide information), to request relevant knowledge from others (an obligation to collect information), and to actively promote communication and understanding among the project members. In general, motivational losses are reduced if individual contributions are identifiable, appreciated by others, and considered important for the project's success by the project members. Furthermore, motivational losses are reduced if members perceive the project's goals and purpose as well as their project membership as attractive and if they feel a strong sense of responsibility for their project's success (see Shepperd 1993).

Production blocking in brainstorming, that is, fewer ideas being created by the group compared to the number of ideas generated by the same number of people working individually, is an oft-cited example for **coordination losses** among knowledge workers. Coordination losses are also well-known in other knowledge-related tasks. For example, hints as to who is the most productive team member or who has the best individual performance are often not recognized or put to use adequately when trying to identify the best individual contributions to the group. For instance, egalitarian heuristics – e.g. “let's have a ballot” – are used, even though decision making rules that account for expertise would be more beneficial. Despite the potentially high quality of a single contribution, a suboptimal solution is often favored, when it is proposed by a senior member of the group.

We speak of **process gains** when a group of people is able to access a broader pool of knowledge or makes a better decision than any one of its members could do individually. Process gains can be motivation-related; such **motivational gains** are not specific to the handling of information and opinion forming, but can arise in all kinds of group activities. Already in the 1920s, Köhler (1927) observed that the weaker partners in dyads put in more effort when the two persons are working together rather than working by themselves (so-called Köhler-Effekt). **Social compensation** occurs when the higher performing member puts in more effort in interdependent than in independent conditions, particularly if he or she considers the group's success to be very important and assumes that the contribution of the lower performing members could threaten the attainable interdependent outcome. Motivational gains through **social competition** occur when individual performance levels are almost equal and individual performance is clearly identifiable and comparable (for a review, see Schulz-Hardt and Brodbeck 2012).

Example

In the example described above, motivational losses seem to exceed motivational gains. A quick decision with little conflict was preferred over a more elaborate discussion. As a consequence, not all relevant information and not every perspective were taken into account. Dr. Hagen and Dr. Wagner were not interested in why Mrs. Millers would have chosen a different location for the project. Moreover, Mrs. Miller did not try to convince Dr. Hagen and Dr. Wagner of the advantages of her preferred location. Mrs. Miller may also have been more easily convinced, because she believed that her male colleagues – both holding PhDs – had a higher status than herself.

3.2.2 Stimulating and Limiting Factors in Collective Information Processing

There are only a few references to **process gains** which result from forces other than motivational factors in social psychologists' research on groups (for a review, see Schulz-Hardt and Brodbeck 2012). Examples for such process gains are reciprocal error correction, mutual cognitive stimulation, stereotype and response biases reduction, compensation of differing perspectives, the synthesis of complementary contributions of different members, or the compensation for poor partial performances in tasks with multiple subtasks (see Brodbeck 1999).

These phenomena all include **synergy effects** that are neither merely motivation-related nor coordination gains, which usually apply only to manual tasks (in terms of organizing, synchronizing, and combining individual activities). Instead, such phenomena are referred to as "**codetermination**" to highlight that these processes occur during collective information processing and involve the socially mediated adaption, modification, transformation, variation, or changes of and to individual resources (Brodbeck 1999).

Codetermination can affect individual knowledge resources by *limiting* (process loss) or *stimulating* (process gain) the amount of information or knowledge that is brought to bear on the task. For example, during brainstorming in groups, the group member who shares his ideas with others, while talking, keeps them from developing and formulating their own ideas (restriction). Moreover, the individual contribution itself can have a restricting impact on the group in that it limits the generation of new ideas (Ziegler et al. 2000). Cognitive stimulation can also arise during brainstorming, for example, when the exploration of contextually new areas that would not have been considered in individual work is stimulated in the group (see Nijstad et al. 2002).

Example

In our example, the group did not fully harness the potential of cognitive stimulation. For example, by taking Mrs. Miller's reasons for choosing a different location into account, the team might have discovered other criteria relevant for the decision (e.g. issues of human resources) that had not played a role in the decision so far. This could have led the group to discover disadvantages in the locations which were preferred by Dr. Wagner and Dr. Hagen or to become aware of the advantages of the location that was preferred by Mrs. Miller.

Since process gains and losses are based on different modes of action, they can, in most cases, be harnessed independently from each other. In particular, it is worth to note that reduced process losses are not automatically associated with process gains and that synergy effects promoted systematically do not automatically prevent co-existing process losses ("Synergy is not for free"; Brodbeck 1999).

- ▶ In order to promote the mobilization and integration of knowledge, process losses have to be reduced, while process gains have to be facilitated at the same time.

Detrimental and favorable effects can also occur during **collective problem solving**. For example, detrimental effects might occur when a role model (e.g., a team leader or a popular team member) with ineffective strategies dominates the group or when the group's attention is constrained to particular aspects of the task that are of little relevance. At the same time, the group may benefit when members point out incorrect or partial solutions (error correction) or when their approaches to solving a problem complement each other. This improves their performance in the group context as well as in subsequent individual work. These effects therefore seem to indicate a form of codetermination that is borne by **socially mediated learning** (i.e. learning with, by, and from others).

3.2.3 Social Learning and Collective Memory

In the light of socially mediated learning by codetermination, the early stages of project groups should be seen as an upfront investment, because project members often have to develop a shared understanding of central aspects of their new task before starting to work on the task itself. At the same time, they have to make an effort to successfully coordinate and organize their individual knowledge resources. For this reason, the initial project phase can often be quite tedious, and project members can get the impression that they are not making progress. However, this stage is of particular importance for the project's eventual success.

Wegner's (1986) **model of collective knowledge organization** states that the degree to which every single project member is aware of the expertise and knowledge of the other group members provides an important basis for the effective integration of different knowledge resources. Transactional knowledge systems make the accumulated knowledge of others available to single members. They provide access to relevant knowledge held by others (e.g. by asking specific questions or seeking aid) and facilitate the disclosure of relevant knowledge to individuals who interpret and process it more effectively for the project (e.g. through collecting specific information and updating it). As a result, less redundant knowledge is accumulated in the project and the acquisition of new knowledge is accelerated. The transactional knowledge of a currently appropriate source of knowledge within a project improves the process quality of production tasks as well as the application of shared knowledge during collective decision making and problem solving. However, building **transactional knowledge systems** requires more effort, communication, and time; for example, everybody has to expose his or her specific knowledge at the beginning of a project and has to learn to make appropriate use of the others' expertise. Furthermore, a greater degree of interdependency results from the reliance on interconnected and less redundant

knowledge. When a person occupying a central position within the network withdraws from the project, the effect is a loss of parts of the project's memory. This phenomenon can be counteracted by naming not only one, but several people responsible for certain project tasks.

Example

The project group in our example did not use their collective memory to make the best possible decision. Better results might have been achieved if each team member had looked at each location from his or her expert perspective. For example, Mrs. Miller could have looked at relevant information about human resources, Dr. Wagner could have collected information about finances, and Dr. Hagen could have explored production issues. During the meeting, this information could have been shared, discussed, and integrated in order to choose the best alternative. Consequently, this might have led the group to harness its diverse collective knowledge more effectively.

3.2.4 Theory of Collective Problem Solving and Decision Making

Collective opinion forming and decision making works by integrating individual knowledge resources and can fall on a continuum ranging **from reasoning to judging**. Reasoning and problem solving result in a demonstrably correct solution whereas judging is characterized by opinions, which have a valuing component. It cannot be ascertained whether opinions are correct, but their plausibility can be determined by social consensus.

A central postulate of the theory of collective problem solving and opinion forming is that the number of group members who are necessary and sufficient for making a **collective decision** based on the available information is inversely proportional to the ability to demonstrate the correctness or plausibility of the proposed alternative. Thus, the effectiveness of a decision making rule for finding the truth depends on its demonstrability. Empirical studies show that high demonstrability corresponds with the application of the decision rule “the truth wins” (the best alternative prevails) or “the supported truth wins” (provided that the best suggestion is supported – at least by one person). Furthermore, low demonstrability is associated with equiprobability (good and bad propositions are equiprobable), proportionality (the suggestion supported by most group members prevails) or majority rules (the suggestion by simple majority prevails).

The demonstrability of the **correctness or the plausibility of individual positions and contributions** depends not only on task characteristics (reasoning vs. judging), but also on other factors. For example, it increases with the consensus about a conceptual system (e.g. a theory, a terminology, a set of criteria), with the

amount of relevant information that is presented during the group's discussion, and with the ability, motivation, and time invested by group members with presumed correct or plausible solutions to convince others of their alternatives.

Example

In our case, the project members simply took the easy option of using the simple "majority prevails" rule for integrating knowledge. Demonstrability was determined only by the subjectively "estimated" degree of attractiveness of the alternatives and less by a factual, deductive analysis of all information speaking for or against the alternatives. For instance, only pleas of support were made for each alternative. The distribution of preferences for the different locations (B, B, C) was a particular case in point. That is why relative little time was spent on mobilizing a greater amount of information or on evaluating facts, criteria, and alternatives. The social influence (e.g. high impact of majority vote, high status members) became the decisive factor; team members were overly concerned with the question "Who is right?". However, to strengthen the informational influence that would have been necessary for optimal performance team members should have been discussing the question "What is right?".

3.2.5 Groupthink

Among the central characteristics of projects are high task complexity, time pressure, and uncertainty about the project's success. While these conditions might motivate the members of the project to put in a lot of effort to succeed, they are also a major **source of stress**. Stress can lead to abandoning careful analysis, to unsystematic experimentation with ad-hoc solutions, and to the uncritical imitation of others. Additionally, it can lead people to limit the options to the most obvious, urgent, and easiest to resolve parts of problems or to generate solutions only within a frame they are familiar with. When a project group is trying to solve important and complex decision tasks under conditions of time pressure and stress, **groupthink** (Janis 1982) is likely to occur. This phenomenon affects the quality of opinion forming and decision making processes negatively. In order to counteract groupthink, we recommend the following (steps) (cf. Esser 1998):

- Designing structural factors in such a way that isolation from the outside world is rendered impossible;
- using already established approaches for collecting information, forming opinions, and making decisions;
- avoiding time pressure and "directive" leadership, and
- aiming for diversity in the group's opinions.

Example

The project group in our example focused on completing the project task as quickly as possible and developed a strong desire for a consensus in order to avoid reviving past conflicts. Under such conditions, the occurrence of group-think becomes highly likely. Furthermore, the project members abstained from using good information collecting and opinion forming practices that would have been adequate for the task (see above).

3.2.6 Harnessing Shared Knowledge (Hidden Profile)

Integrating knowledge resources that are shared between different people plays a central role in projects. Research on hidden profiles suggests that groups usually do not use their shared knowledge in the best possible way (Brodbeck et al. 2007). To illustrate this phenomenon, we use the case study described at the beginning of this chapter: The project group of the organization “Smith”, consisting of the project members X, Y, and Z, has to decide in which location (A, B and C) the organization should build a new production site.

The information about possible locations, i.e. their advantages and disadvantages and the way this information would be distributed under hidden profile conditions within the project, can be tabulated (Table 3.1) and diagrammed (Fig. 3.1).

It can be seen from the diagram that the information supporting location A is “unshared”, that is, it is held by different people. The information supporting alternative B or C, on the other hand, is “shared”, that is, it is available to all individuals. Shared information carries more weight in decision making processes within groups than unshared information. This leads to wrong decisions if critical information is unshared, as happened in our example (Table 3.1).

Research indicates that groups usually do not succeed in solving hidden profile situations (e.g., Stasser and Birchmeier 2003). In line with Brodbeck et al.’s (2007) theory, this failure can be explained by three typical mechanisms of collective information processing in group decision making:

- negotiation focus,
- discussion bias, and
- evaluation bias.

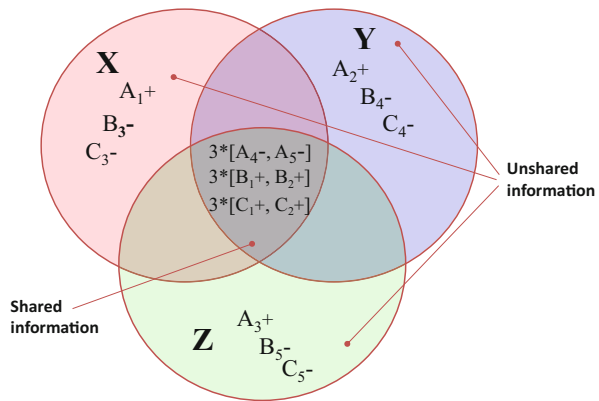
Negotiation focus: There is a well-grounded tendency within groups to maximize utility in face-to-face opinion forming and decision making. This tendency is expressed by not discussing information in detail, but by concentrating on the individual choice preferences and their distribution within the group. If all individual decision makers within a group possess the same or full information, then this approach is usually expedient.

Table 3.1 Distribution of information in a hidden profile

Project member	X	Y	Z	$X \cup Y \cup Z$
Location A <i>pro</i>	A1+	A2+	A3+	A1+, A2+, A3+
<i>con</i>	A4-, A5-	A4-, A5-	A4-, A5-	A4-, A5-
Location B <i>pro</i>	B1+, B2+	B1+, B2+	B1+, B2+	B1+, B2+
<i>con</i>	B3-	B4-	B5-	B3-, B4-, B5-
Location C <i>pro</i>	C1+, C2+	C1+, C2+	C1+, C2+	C1+, C2+
<i>con</i>	C3-	C4-	C5-	C3-, C4-, C5-
Resulting decision	B/C better than A	B/C better than A	B/C better than A	A better than B/C

If all available information in the project group is considered (right column, $X \cup Y \cup Z$), then location A is the best choice with 3 benefits (A1+, A2+, A3+) and 2 disadvantages (A4-, A5-) compared to location B (B1+, B2+, B3-, B4-, B5-) and C (C1+, C2+, C3-, C4-, C5-) with only 2 benefits and 3 disadvantages each. As can be seen from the first three columns X, Y and Z, none of the project members has all the information available under this information spread. Therefore, each individual has different preferences (C and B are better than A) than those deduced from the total information (A is better than B and C). If, in this situation, the decision is made solely on the basis of the distribution of individual preferences within the project (“Who is right?”) and not on the basis of the available total information (“What is right?”), then a bad decision is made, in this case: “B or C are better than A”.

Fig. 3.1 Distribution of information in a hidden profile (Venn diagram)



However, under the condition of a hidden profile, the tendency to orient oneself towards individual choice preferences, instead of analyzing the entire information in groups, is likely to result in an inadequate decision outcome. As is shown in Fig. 3.1 individual decision makers are only aware of a certain part of the total information available to the entire group. If these parts do not constitute a random selection of all relevant information, but the information available is limited for deliberate or random reasons, there is the risk of a hidden profile coming into effect.

Discussion bias: Even if the negotiation focus is resolved or postponed to a later point in the group discussion, it is likely for other biases to occur during the sharing of information, which can hinder the decision making process. For statistical reasons alone, shared information (i.e. several or all members have the same information available) comes up in discussion more often than unshared information (only one person knows one particular information). Such shared information will be repeated more often over the course of a discussion than unshared information. This favoritism is twofold and leads to a higher emphasis on shared information within the group discussion and decision. If shared and unshared information are equally relevant to the quality of the decision, there is a certain risk of making wrong decisions. This risk becomes even higher if the unshared information (i.e., those facts that can be brought forward by few or only single protagonists) is of more importance for the quality of the collective decision than the shared information.

Evaluation bias: Even if groups succeed in avoiding a negotiation focus or discussion biases and in sharing all relevant shared and unshared information, further adverse biases can occur during people's **individual evaluation of the information**. On the one hand, shared information is considered as more trustworthy and more relevant by individual decision makers than unshared information. On the other hand, information consistent with their own or the group's preferences are judged less critically than information that is inconsistent with preexisting preferences. In a hidden profile situation, both biases lead people to put more emphasis on shared than on unshared information when individual decisions are made (in a group context).

- ▶ Through this, individual information biases impair the group's decision further, irrespective of the mentioned collective biases.

The mechanisms of collective information processing which lead to a negotiation focus or discussion or evaluation bias, thwart the ability to make decisions independently from one another (they become particularly strong in combination) and prevent project groups working under hidden profile conditions from making decisions that consider the available information appropriately.

Example

For our case study, these findings imply that the project members' unanimous, conflict avoidant attitude prevented the group from discussing dissensions that would have been important for disclosing the hidden profile. Although the project members did not agree at the beginning (the locations B, B, and C were individual preferences at first), all parties avoided the conflict and therefore omitted the best location alternative A. None of the mentioned effects were considered nor were techniques used to counteract these effects.

3.3 Leveraging Composition, Synchronization, and Learning for Effective Decision Making and Problem Solving in Projects

Three major approaches for effective project management can be derived from the psychological insights in collective information processing and opinion forming:

- group composition,
- synchronization, and
- learning (cf. Schulz-Hardt and Brodbeck 2012).

Composition refers to the staffing and the design of team tasks within projects; synchronization means organizing, leading, and motivating project members; and learning refers to team development measures and training.

3.3.1 Composition (Staffing and Task Design)

As much as projects would benefit from the systematic selection of team members with regards to their collective information processing effectiveness, this is often not possible in real-life organizations. Practical constraints, the shortage of certain human resources, and often political considerations, too, restrict the degrees of freedom when staffing projects. However, current research reveals (cf. Guillaume et al. 2013) that a demographically and functionally heterogeneous group can promote collective problem solving, judging, and decision making by making more diverse knowledge and information available. Nevertheless, this can lead to coordination problems and conflicts at the beginning in particular. Thus, such groups often have to overcome more difficulties in team development (e.g. in order to develop a collective memory, build trust, or manage conflicts) until the project group can fully realize its **achievement potential**. The following is recommended in order to benefit more from the inherent potential of heterogeneous groups:

- Facilitate team development,
- Instill beliefs that diversity and disagreement as well as the associated task-related conflicts promote project success,
- Design project tasks to be interdependent and establish norms that facilitate the exchange and integration of different knowledge, skills, information, and perspectives.

3.3.2 Synchronization (Organization, Leadership, and Motivation)

In order to achieve effective synchronization, project managers have to exercise particular leadership functions. Furthermore, they have to try and support the

autonomy and self-responsibility of project members in terms of mobilizing and sharing knowledge (cf. Schulz-Hardt and Brodbeck 2012; Brodbeck and Guillaume 2010). When organizing, leading, and motivating people, attention should be paid to the following:

- ensure that different knowledge resources and perspectives are mobilized for the project
- eliminate production blockades and cognitive constraints and support cognitive stimulation
- cater for conditions that prevent groupthink, so that a shared added value can arise from extensive social interactions between project members.

3.3.3 Mobilizing Knowledge Resources

As pointed out already, knowledge resources are used and deployed best if project tasks and project membership are seen as attractive and if project members feel highly responsible for the project's success. Knowledge resources are used optimally if the contributions of individual project members are assessed by others and if they are considered important for the project's outcome.

In order to raise the level of commitment of each individual group member as well as the commitment of the entire group and thereby promote the mobilization of individual knowledge resources and the sharing of knowledge within the group, project managers should

- agree on targets with individual project members as well as with the entire project team and provide feedback on their progress,
- allow every individual and the group as a whole enough autonomy in their choice of resources and tools,
- implement individual and group incentives, e.g. in the form of individual or group reward systems (cf. Lawler 2000). For example, the ProMES-goal setting system (Pritchard 1995) can be used for these purposes.

In order to encourage project members' sense of identification with the project group and the task to reduce the effects of negative emotions arising from barriers encountered at work (e.g. technical problems, the poor availability of personnel, conflicts, excessive workloads) and thereby improve, among others, the mobilization and sharing of knowledge, project managers should apply a transformational leadership style in the sense of

- idealized influence on,
- inspirational motivation of,
- intellectual stimulation of, and
- individualized consideration (e.g. by coaching) of every single employee and the group as a whole.

3.3.4 Overcoming Production Blockades and Promoting Cognitive Stimulation

For reducing production blockades and promoting cognitive stimulation, the following topics should be considered when combining relevant information, generating new ideas, solutions or even new problems (brainstorming):

- Combined use of **face-to-face and computerized (nominal group) methods**.
- Combination of **individual and collective work**, for instance during brainstorming:
 - Step 1: Let project members individually reflect and write down ideas.
 - Step 2: Let project members share their ideas in group work.
 - Step 3: Request project members, again in individual work, to reflect on these ideas, to develop, formulate, and record them.
 - Step 4: Collect all of these ideas in one document.
 - Further opportunities to **mobilize new knowledge** lie in specifying themes and search areas, e.g. in building semantic categories and in sharing corresponding homogeneous or diverse ideas for stimulation within the group. This approach is used in several creativity techniques.

3.3.5 Knowledge Integration Using the Example of Collective Decisions with Shared Information

To increase the likelihood of high quality decisions in hidden profile situations, it is recommended (cf. Brodbeck et al. 2007)

- that project members have different choice preferences and discuss them intensively. As a result, the negotiation focus is postponed and proportionally more unshared information is collected and processed, which leads to higher-quality decisions. This will even be the case when all project members prefer an incorrect or suboptimal decision in the beginning (cf. Schulz-Hardt et al. 2006);
- to strengthen the social norm “What is right?” or “What is best?” (instead of “Who is right?”). In this way, the negotiation focus and discussion biases are reduced;
- to promote the formation of a transactional knowledge system (see above), thus improving the active and direct demand for unshared information;
- to practice participative leadership and to actively control discussion progress by
 - promoting equal participation of all attendees,
 - stopping discussions about preferences that yield little new contributions in a friendly manner,
 - revealing as yet not communicated information by repeated requests,

- being sensitive to rarely communicated information,
- and by revisiting alternatives that are not at all or rarely discussed.

(For further techniques, see Brodbeck et al. 2007).

3.3.6 Collective Learning (Team Development and Training)

Along the lines of the motto, “synergy is not for free”, individual and **collective learning** should be considered an investment leading to the better use of shared knowledge, especially in projects with high diversity. Learning can take place during the preparation or the initiation of the project as well as during the project’s later progress (cf. Hackman and Wageman 2005).

Above all, the following measures are suitable for the preparation or initiation of project work in groups:

- Training and team development measures by offering, amongst other things, individually tailored development opportunities as well as appropriate training and coaching in order to procure social skills, but also task-specific skills (e.g. acquiring knowledge about project management software).
- Establishing social norms and a team culture or providing coaching in which the team processes and performance are reflected upon, again and again, during the project’s course. Particularly instrumental to this purpose is the following:
 - Special focus should lie on norms that promote a culture of learning from mistakes. These are characterized by a growing confidence between the project members that admits expressing constructive criticism more often, exchanging shared knowledge, and generating a bigger added value through social interaction.
 - Promoting a **collaborative learning focus** is also of great importance, so that project members are motivated and capable of supporting and promoting one another, fully deploying their individual resources within the collective action context and developing their transactional knowledge system and their collective work strategies through the systematic reflection on group events.

The following measures for coordinating project members and forming collective memory are particularly suitable during the project’s later course:

- Systematic reviewing of processes (like collaboration quality) and outcomes (i.e. of the achievements so far) within the team (cf. Schippers 2003). Such reviews can be incorporated into project meetings very easily and in a few minutes. “Lessons learned” should be identified by discussing what could have been done better.
- Such reviews promise particular added value if project members feel safe and can express their views freely, so that i.e. an **error and learning culture** is developed within project groups.

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Richard Streich and Jens Brennholt

Abstract

This chapter explores the challenges and pitfalls encountered in communication during projects and considers possible ways to improve it by applying a systemic perspective. It does so by discussing the place of project communication in business operations and uncovering the links between the factors for successful project management and the impact of appropriate communication with a view to the right structures, processes, and practices. Concrete, practical footholds for effective and efficient communication in projects are showcased in examples drawn from real-life practice, with a particular emphasis on the right behaviors and practices of the people involved in and affected by such communication.

4.1 The Problem of Communication in Projects from a Systemic Point of View

Studies show that communication has a substantial impact on the success or failure of projects (Hoegl and Gemuenden 2001). Communication in projects should not only be considered one significant challenge among many, but an essential part of the managerial mission of project leaders and their teams. However, managing communication means more than “the timely and professional creation, collection, distribution, storage, selection, or use of project information” (Project Management Institute [PMI] 2004, p. 221). What is more important is that “all persons involved in the project [. . .] understand the way communication influences the success of the entire project” (ibid., p. 221). Communication should therefore be considered in the

R. Streich
Paderborn, Germany

J. Brennholt (✉)
Scenario Management International AG, Paderborn, Germany
e-mail: jens.brennholt@brennholt.de

same universal terms as successful corporate management or project leadership in general.

Managing a business successfully needs effectiveness and efficiency on **three levels**: The strategy, structure, and culture, with due consideration for the environment that the business is embedded in. Traditionally, the process in **executive management** moves from deciding on a strategy to designing the structures that are needed to act on the chosen strategic options, structures that need to fit the established culture or can contribute to changing that culture over time. Such a systemic approach to business management (Malik 2000) can also be applied to the level of intra-organizational **project management**. Its purpose is to translate the objects defined by the strategy into adequate project processes that promote effectively aligned practices and behaviors among the people affected by or working on the project (project level). The people in charge of projects are therefore tasked with installing and enforcing the required project processes, while having to operate with the given corporate structure (in its procedural and structural make-up). The behavior and practices of people engaged in their projects are, in turn, embedded as part of the prevalent corporate culture, making the project leaders both constituent elements and carriers of the system in the sense of a holistic management of the organization.

Communication in projects is similarly subject to this systemic triad, albeit in a distinct form: The key here is to establish the right strategy and message for communication by considering or, indeed, putting in place communication structures and processes that are mindful of the given project's constraints, as they will go a long way towards defining the communication culture and practices in the project. Doing so successfully needs appropriate consideration for and the permanent penetration of all **3 levels of communication**. This constitutes an important building block for any successful project management (Streich 2002). The **effect is one of a distinct learning curve** (t_{n+1}), as new knowledge is constantly expanded in the interaction of the system's levels over the course of the project, contributing to the establishment and evolution of knowledge management practices (Fig. 4.1).

Applying such a systemic perspective helps recognize the needs for change in project and communication management and structure the contents and objects of communication more effectively, so this chapter will pursue this perspective further as the guiding principle for possible improvements.

These **3 levels** that were identified on the macro-level of the company as a whole and on the micro-level of projects and the communication that goes on in them are the essential objects of any successful project and communication management. At the same time, they constitute the prime triggers for communication in projects, as:

- Strategies and goals are reviewed and project assignments and objects are specified.
- Structures, processes, and procedures are defined and their implementation aided by communication.
- Aspects of culture and the behavior of project personnel, such as individuals' attitude about punctuality, are addressed and discussed.

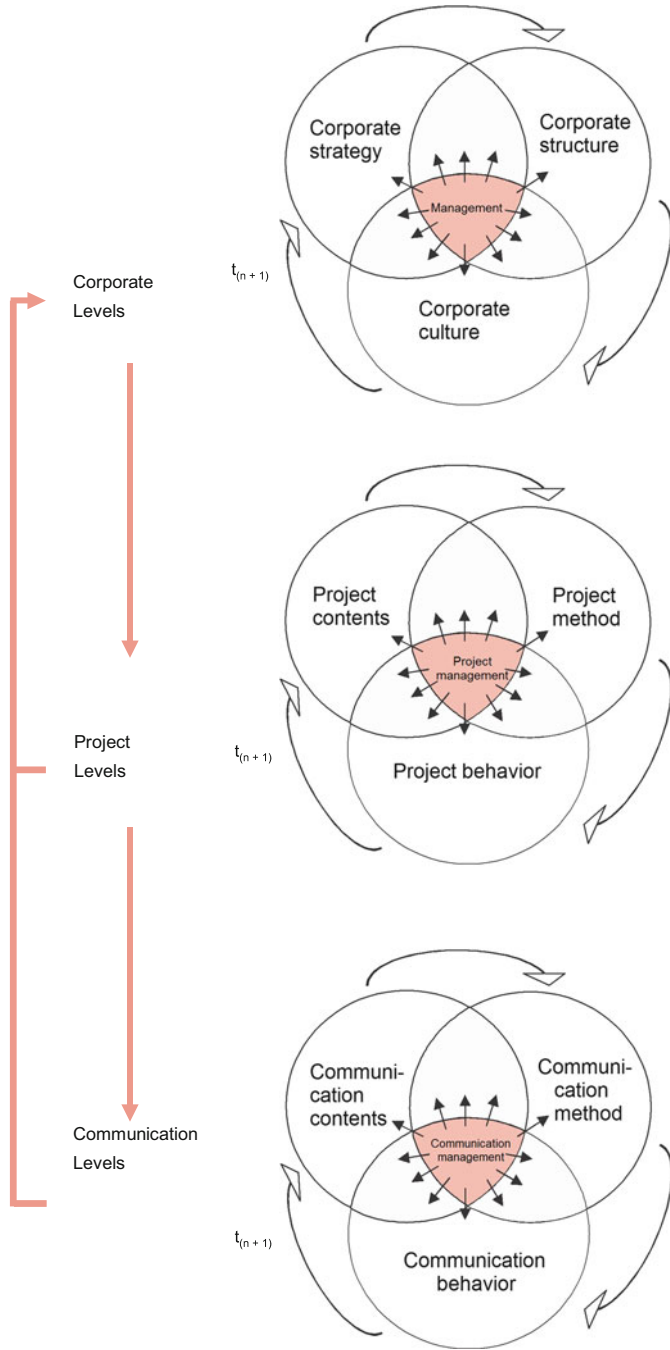


Fig. 4.1 Systemic levels in corporate, project, and communication management

Projects are planned, led, and concluded successfully by applying precise criteria of time, costs, and quality and by using the available resources to execute the given project assignment. Project management is often established as the sister of the line organization, as expressed in project groups with formal or informal internal hierarchies (Streich 1996).

The mentioned systemic levels, fields for action, project criteria, and the embedding (or appending) of project management in (or next to) the line organization make certain aspects of communication indispensable for completing the project's purpose. The **internal and external actors and how they communicate with each other** deserves particular attention in this respect.

4.2 The Psychological Background and Its Relevance in the Context of Flawed Communication in Projects

It is virtually inevitable for flaws to occur in internal information or other tensions and conflicts during projects. How work is coordinated by project managers can prove to be an important source of motivation, specifically by making sure that clear information is available, responsibilities are known, and the relationships with other organizational units or departments are working well (Wunderer and Küpers 2003, p. 211).

- ▶ The primary warning signs of negative project team meetings are disruptions in communication between the actors in them. Efficient team meetings can be made impossible if there is an insufficient fit between the sender and recipient, e.g. between the message's many levels of content, relationship, self-revelation, and appeal (Schulz von Thun et al. 2001), or if the contents of the message are not processed appropriately.

New information and communication media have given life to new forces that might lower the thresholds of inhibition and reduce the bonds between people. The temporary nature of project work and the project-dependent partnerships that exist within project teams, paired with increasing virtualization, already lead to gaps in communication and information and might eventually serve to demotivate the involved parties (Wunderer and Küpers 2003, p. 212).

4.2.1 Requirements for Communication Structures and Processes

Project management consists essentially of constant negotiation, with each party involved trying to find a mutually acceptable solution despite the often conflicting needs and points of view (e.g. line leadership aspects vs. project leadership). This makes negotiating one of the key activities for any project manager. Project leaders

will find themselves “**sandwiched**” between the client or decision-makers, the execution-side of the project, i.e. its team members, and other third parties. In that process, the contracting and implementing parties have different points of view e.g. about the clarity or structure of the project goals, the use of authority, the qualification of project members, the length of various project activities etc. The project managers fulfill an **interfacing and bridging role** between these contracting and implementing levels (Racine 2006).

In actual interaction during the project, several **communication structures** can be used in the project work, ranging from chains and circles of information to completely networked communication between all parties. The latter can lead to improved performance, especially in complex project tasks. Such communication structures should not be confused with the decision-making structures of the project. A pending decision might indeed be discussed in a communication network in the project team, but the final decision is left to the project manager. In this sense, decision-making would be autocratic or centralized, while communication remains consultative (Vroom and Yetton 1976).

Apart from considering the structures of communication in projects, that communication can also be inherently influenced by the chosen means, instruments, and partners. “Virtual” project work without the opportunity for direct, face-to-face communication is a particular case in point, as it creates special challenges for communication.

The foremost purpose of communication management in projects is to ensure that all **stakeholders** are given the information they need to carry out and finish the project in time and as initially requested.

Four Processes for Communication Management in Projects, Drawn from the PMBOK Guide (Project Management Institute 2004, pp. 221–222)

1. Planning communication
2. Sharing information
3. Reporting on progress
4. Managing stakeholders

Schelle et al. (2005, p. 45) suggest that it is not enough to rely on a loose collection of actions and interventions. Instead, there should be a permanent and institutionalized improvement process and stakeholders should be used for their feedback. Companies that use or plan to use an integrated management system are well-advised to interlock such stakeholder communication with this system, just as they do with other interface functions (e.g. project, quality, or environment management).

4.2.2 Behavioral Requirements in Communication

Beside these requirements concerning structures and processes, there are other requirements concerning **behavior in communication**.

Efficient communication in projects is subject to a multitude of mental barriers. Phrases and sentences do not mean the same for everybody. Different people attribute different meanings to the same message. Depending on people's career paths or professional disciplines, they would interpret and emphasize what seems like similar contents in uniquely different ways. The recipient receives a message that differs from the one sent and meant by the sender.

Possible barriers to communication between persons

- Filter mechanisms
- Selective perception
- Information overload
- Defense mechanisms

Filter mechanisms are coming into effect when the sender manipulates a message, for example in order to whitewash negative content by qualifying it. In projects, information might be filtered several times on its “upward” route and influenced by the personal interests of the many actors on the various rungs of the hierarchical ladder.

- ▶ The more hierarchical levels there are in an organization, the more filtering will take place in communication. This is especially relevant for project managers, considering their obligation to communicate and inform the hierarchy around them.

A project client will typically be significantly higher up on that ladder than the project manager in his role as contractor. The dangers of filtering increase even more when different disciplines with their unique interests are involved in the project.

The barrier of **selective perception** in communication affects the contents, but also the group involved and the organization at large. The recipients see, hear, and read “selective” messages that correspond to their needs, motives, or expectations. In turn, they include their own interests and expectations in the message, in accordance with the motto: “Reality is what we interpret as reality.”

Often, communication barriers can also be created by **information overload**. The typical project manager will need substantial amounts of information, although his or her ability to process it remains finite, forcing the project manager to select, prioritize, or even ignore parts of the information to stay capable of action.

The relationships between the parties engaged in communication also need to be remembered, as does the fact that communication occurs in more ways than simply in spoken dialogues. According to the principles or “axioms” of communication proposed by Watzlawick et al. (1967), one cannot **not** communicate.

For example, communication can have more impact in a conflict when one of the parties stays silent, instead of flooding their opponents with counter-arguments. The relationships will also overshadow the actual contents of communication, as interpersonal aspects are communicated “between the lines” and factual content is subject to a certain logical syntax (the authors distinguish between “analogue” and “digital” communication). Reaction and counter-reaction are mutually interdependent and can lead to a negative spiral in a conflict. When two colleagues accuse each other of being disloyal, then either side will see their own actions only as a response to the disloyalty of the other. A further “axiom” implies that the balance between the parties decides whether the communication is complementary or symmetrical, i.e. whether there is a level playing field or an imbalance between them. In a specialist discussion between colleagues, communication is usually symmetrical. However, if there is a formal or informal hierarchy at work, the party in the higher position will act as such and will manifest its hierarchical authority in the communication.

- ▶ Communication does not only refer to the sharing of facts (factual level). Many other relationship-driven aspects are co-communicated alongside these facts.

The **four-sided model** of Schulz von Thun et al. (2001) distinguishes between the rational and the emotional levels of communication.

Communication as the Interaction of Various Aspects

- Factual information (Contents of the message)
- Self-revelation (What does the sender say about himself through the message?)
- Relationship (What does the sender imply about how he sees himself and the other side in the relationship?)
- Appeal (What is the sender trying to get the receiver to do?)

To safeguard effective communication in projects, it is important to analyze the verbal and nonverbal communication under way in the project team to understand,

- (a) what has been sent on these four sides, and
- (b) what has been understood on these four sides of the message.

The results of this should be **fed back** to the participants themselves to inspire a constant realignment between their self-image and how they are perceived by others and improve their behavior for lastingly effective communication (Ruppert 1999, pp. 540f.). **Meta-communication** can help ensure communication that is also satisfying on an emotional level, by speaking about how people communicate with each other (Ruppert 1999, pp. 545–547).

It should also be considered that people's interests in a project team can differ significantly, e.g. when resources and rewards are not distributed equally (von Rosenstiel 2004) or when project members believe they are bound to 'hidden assignments' from their line superiors ("You can promise a lot, but...!"). In addition to intrapersonal conflicts, interpersonal tensions might be brought into the project team or its collaboration with the line organization. These circumstances often lead to **double-bind communication**, as shown in the following example (Bateson 2000).

Example

A member of a project team has come to identify strongly with the project's task and the team around him. He is highly committed to achieving the project's goals. His supervisor has asked him in private to not allocate any resources from his department for the project. Now, the project manager has approached him to ask about exactly those resources and capacities.

On the level of the relationship that exists between them, he wants to clear the requested resources, as he feels personally committed to the project. On the level of the hard facts, he needs to refuse that request, as he has to operate with the clear, if non-public instructions of his superior. He might respond to this dilemma with a double-bind statement, that is, hide behind apparently factual arguments, while giving away his real intentions in his body language. This might even be a conscious strategy employed by him in the hope that the other members of the project see the distress he is in.

This example shows how accurately project members are forced to observe their peers' behavior in communication. Each perception should be brought out of the "closet" and made available for discussion and debate.

4.2.3 Deficits in Communication

All of the above shows how the people occupying roles in project organizations act and communicate in a "regulated" space that is susceptible to influence. Project managers and their teams need to fulfill their assignments within predetermined structures and processes and with defined instruments and means of communication. In doing so, they exhibit personal behavioral preferences that might not be adequate to their role or the situation, often caused by an ambiguous purpose in

communication. This affects the potential success of their communication – and thereby the project’s success – considerably.

- ▶ Successful project work is based on sharing the information that is relevant for fulfilling the (client) requirements defined in the project assignment. It is therefore highly dependent on communication.

Complex interdisciplinary and, particularly, multinational projects often experience how the high qualitative and quantitative standards for the project work present difficult challenges for communication in the team. For that reason, they need a sustainable **internal and external flow of information** to make team meetings or client discussions more effective and decision-making processes more efficient, and to find the right decisions at the point of need. An important basis for this lies in efficient **information management** which allows each member of the project to access all information needed for a successful execution of the project. Furthermore, the project manager and his or her team need to secure sufficient support from the project client, employees and colleagues in the organization, suppliers, future users, or other stakeholders with audience-aware **project marketing**.

Studies show that many project leaders fail to pay as much attention to communication as they should. They try to skip what they might consider to be “busywork” – with potentially disastrous consequences for the success of the project (Engel et al. 2006, p. 20). It is exactly this lack of communication, within the project team or with its environment, that is frequently named as one of the key factors for the failure of projects (Hoegl and Gemuenden 2001, p. 3 et sqq.).

There are numerous **causes for unsuccessful communication**, lying both in the actors and in the means and processes of communication. The most important task of top managers in this respect is to put the right paths and means of communication in place. The following causes of problems are mentioned repeatedly (Kerzner 2006, pp. 198–201):

Checklist. Reasons for Unsuccessful Communication in Project Management

- Insufficient integration of involved persons or stakeholders in the form of information, communication, and involvement in project decisions (relationship management)
- Superficial targets and inadequately defined assignments
- Unsuitable paths and/or means for communication
- Lacking trust in the communication partner
- Limited acceptance of the communication partner for reasons of position or status (hierarchical differences and status superiority)
- Preconceived opinions and selective perception (“Professional blinkers”)
- Different interpretations and prioritizations of available information (“Blind spots”)

- Personal interests which deviate from the project’s goal
- Use of terms with multiple meanings and diverging contents
- Loading of the communication with emotions and conflict
- Communication or leadership behavior not fitting the circumstances or roles
- Lack of discipline during the communication process
- Low motivation or sense of identification with the project task and team
- Poor readiness for conflict or conflict management skills as well as a destructive conflict management practices

It then seems natural that the reasons behind a lack of success can be found on all three management levels – strategy/contents, structure/processes, and culture/behavior. Project managers and their team should therefore look into how they will communicate immediately at the start of the project. To do so, it is important for them to answer the following questions and act accordingly.

Checklist. Analyzing Possible Improvements to Communication Management in Projects

- With which contents do we want to reach which goals in communication?
- Which target groups (considering all stakeholders!) do we need to reach and how significant are they for our project?
- What do our target groups need and require in terms of information, communication, and participation?
- Which media, means, and paths of communication can we use to reach our target groups in an effect and audience-oriented way?
- What type of behavior do our target groups expect from us and what do we want to display?

These questions can open up new vistas in terms of possible improvements when considering the different **systemic levels in project communication** (Fig. 4.1). The key is to find the right structures, tools, and measures as well as the right patterns of behavior.

4.3 Footholds for Improving Communication in Projects

4.3.1 Communication Strategies and Contents

The contents, purpose, and target groups of communication are intrinsically interdependent. The clearer the purpose of communication (or the communication strategy), the easier it is to determine the relevant target groups and the right contents. At the same time, a project organization might often be confronted with unexpected stakeholders, for which the purpose and contents of communication are as yet unknown. Beside the **quality of information**, special attention also needs to be given to the **quantity of information**. For example, excessive communication and information can hamper progress on the project due to the immense effort

invested into communication. Even a well-meaning “**overflow**” can annoy the recipients or, at least, lead to genuinely important information getting lost in the flood.

- ▶ The project team always needs to be aware of the actual added value of any communication for the sender and the receiver, with due consideration for the effort invested in it.

What then are the **purpose and the job of project communication**? Literature on the subject has uncovered a number of pragmatic roles and goals:

Checklist. Roles and Goals of Project Communication

- Satisfying the stakeholders’ communication needs
- Illustrating the benefits of the project for the stakeholders
- Helping project and knowledge management
- Informing and motivating people
- Covering the upward, downward, horizontal, and diagonal perspective, i.e. 360°.

Considering these goals and the difference between management and leadership in project management, one can immediately distinguish between different contents in communication.

Contents in Communication

- (a) **For managerial (fact-oriented) project management activities**
 - Information regarding the project’s object, e.g. specifications and requirements etc.
 - Information regarding progress and the status of goals within the triad of quality, costs, time (QCT goals), etc.
- (b) **For leading (relationship-oriented) project management activity**
 - Establishing rules on how to work together
 - Solving conflict
 - Leading employees
 - Feedback and coaching on behavior, discipline, cooperation, etc.

4.3.2 Communication Structures and Procedures

The attempt to structure communication and standardize procedures in project organizations often leads to an almost exclusive focus on the formal aspects of

communication. One classic example of this is found in computerized **project information or management systems**, which let their users create project status reports by checking boxes or flagging project status “traffic lights”. However, stakeholders might need information over the course of the project that can only be partially satisfied with such formal communication. It is essentially the spontaneous and interactive character of informal communication that has a major impact on the success of project management (Kraut et al. 1990).

- ▶ Successful project communication structures need to be distinguished by encouraging the productive interaction of formal systems with informal communication structures. Their actors should always be aware of the given culture of project management and communication.

It always helps to stick to few interfaces and short lines of communication with minimal stops in between. If possible, information should be shared in **writing**. This applies to the traditional structural elements of project communication – project discussions, reports, and presentations, PR media, hotlines etc. – as much as to general communication in the project.

The External Perspective

One aspect which is too often neglected in projects is external communication, also known as **stakeholder communication**. As in internal communication, the structural elements of project communication named above can be applied again.

Irrespective of the type of project, a number of **archetypal stakeholders** can be identified.

Typical Stakeholders (in Accordance with the Project Management Institute 2004, p. 26)

- Internal and/or external project client
- End customer, user
- Residents, public figures
- Politics and administration
- Project manager
- Project team members
- Subproject manager and teams
- The rest of the project organization, in particular the project management circle, other project managers, teams, and the project office
- Executives, colleagues, and employees in the company, especially the holders of resources and line managers of project team members, as well as the works council or other labor representatives
- Suppliers and cooperation partners

The project team needs to decide on the shape of this stakeholder communication with due consideration for the unique circumstances it is facing, based on a **stakeholder analysis**. There are two typical means of stakeholder analysis:

1. The quantitative stakeholder analysis
2. The qualitative stakeholder analysis

Quantitative Stakeholder Analysis

The quantitative stakeholder analysis refers to a simple act of naming the stakeholders that exist in a specific project's environment.

Checklist. Key Questions for a Quantitative Stakeholder Analysis

- Which organizations or persons are directly or indirectly affected by the project (within and/or outside the company)?
- Which organizations or persons need to be considered as relevant for the project due to legal, market, competitive, political, financial, or technological requirements?

The quantitative stakeholder analysis can be visualized very effectively with a **stakeholder mind map** or a tabular **stakeholder register** or **stakeholder list** (naming the stakeholders with more details and relevant comments).

Qualitative Stakeholder Analysis

Project team can only consider themselves capable of effective project communication if they conduct a qualitative stakeholder analysis. This analysis explores the influence that the identified stakeholders (might) have on the project. The quantitative and the qualitative stakeholder analyses should both be conducted immediately at the start of the project and updated or revised regularly over the course of the project, since the stakeholder environment is liable to changing (their opinions) over time.

A Stakeholder's Influence on a Project Can Be Defined in Three Dimensions

1. Interest in/through the project (involvement),
2. Means of influencing the project (power),
3. Effect on the project (response).

The first two dimensions are rated on a scale from “low” to “high”, before assessing the general thrust of the stakeholder's impact (response) in terms of “negative” (opposed or obstructing), “neutral /indifferent”, or “positive” (supporting) stance.

This information can be visualized well with the stakeholder register (Table 4.1), which makes it easy to prioritize stakeholders in relation to the project and to identify the key stakeholders for the success of the project. With that knowledge in

Table 4.1 A sample stakeholder register with prioritization and action plan

Stakeholders	Interest/ Involvement	Influence/ Power	Impact/ Response	Priority	Actions	Comments
Stakeholder 1	Low	Medium	Positive	C	No actions needed	
Stakeholder 2	High	Medium	Negative	A	Inform beforehand, involve...	Opinion leader!
Stakeholder 3	Medium	High	Undecided	A	Sell the advantages of the project, win over as supporter...	

Table 4.2 A sample communication and involvement matrix (Model according to Project Management Institute [PMI] 2004)

Stakeholder	Needs to be informed	Needs to be consulted	Needs to participate in discussions	Needs to be involved in decisions
Works' council	Project status report (sent copies)	Personnel decisions		
Executive board	Project status report			Changes to the project assignment
Project steering committee	Project status report			Clearing milestones, escalating unresolved conflicts
Department X	Project status report		Technical solutions for X	Planning resources and capacities in area X
Media	Press report (ad-hoc, if needed)			
Other project managers	Project status report (sent copies)			Resolving capacity and resource conflicts

Source: Streich & Brennholt (Adapted from Schelle et al. 2005, p. 408)

mind, preventative measures and/or suitable reactions can be chosen for each stakeholder's influence on the project.

On top of the stakeholder register and its suggestions for stakeholder communication, the quantitative and qualitative stakeholder analysis can feed into a **communication and involvement matrix** (following Schelle et al. 2005, p. 408) that helps determine the degree to which certain stakeholders should be involved in communication and decision making during the project.

The degree to which people are included in communication or generally involved in the project can differ substantially depending on the issues or objects of communication in question. For that reason, the relevant data should be included in the table's columns (Table 4.2).

The Internal Perspective

Naturally, communication within the project team also needs structures and procedures to keep going. The most important structural decision to be taken by the project team concerns the definition of roles with specific **authorities and competences within the scope of the project organization**, the number of team members and their expertise, and the chains of command and means of collaboration with the functional departments.

The requirements that the project team has to work with define the structure that should be chosen for communicating in the group. If team meetings simply have to act as conduits for information for the team members ("one-way" communication, issuing instructions) without much leeway for any greater discussion, then a

centralized **star-shaped communication structure** should suffice, in which all the communication is directed from the sender to the recipients, without the latter staying in contact with each other. If, however, problems need to be solved creatively or cooperatively in team meetings and decisions need to be made and measures planned together, then – as Vroom and Yetton (1976) have shown – a “**total**” **communication structure** is recommended, which allows all participants to communicate with each other.

- ▶ The most important tool for creating communication structures and defining the rules for cooperation is the internal **project kick-off** meeting, but many kick-off meetings suffer from the cardinal error of already trying to work too much on the actual object of the project.

4.3.3 Communication Cultures and Behavior

Even the best structures and processes for project communication cannot hope to be effective if the **behavior of the people involved in projects and their stakeholders** undermine them. Considering the reality of projects in business, one can see that many companies have often very well-defined and unambiguous processes, structures, and roles in place – some following common project management manuals such as the PMBOK (Project Management Body of Knowledge, PMI 2004). Their actual practice, then again, is far from unambiguous. When external consultants are brought on board to support projects, companies tend to go for subject matter experts, not qualified organizational psychologists who could back up project leaders and supervise their projects as coaches or communication experts.

The Perspective of the Project Team

Working in projects means teamwork, whose benefits can only be gained with a dependable culture in place – especially in terms of the communication culture.

The project kick-off should therefore agree on **rules on working together and on how to behave in communication**. This does not free each individual from the need to constantly work on themselves and their styles of communication. The following simple tips and techniques can help ensure successful communication:

Checklist. Simple Communication Techniques (in Accordance with Ruppert 1999, p. 540, Completed)

- Use short statements (the little that really matters)
- Make simple statements
- Speak slowly and clearly
- Use clear images
- Multiple coding (verbal, visual, written) of the most important message
- Use vivid examples to support abstract statements

- Ensure redundancy by repeating particularly important messages or by transmitting them in different ways
- Ask for and give feedback – Use this to verify whether messages have been received and understood correctly
- Use direct forms address; a face-to-face talk or a telephone call is preferable to an email or fax
- Show empathy for the reactions and feelings of the other person
- Notice nonverbal signals
- Choose the right time and place for communication
- Make the purpose of communication clear
- Appreciate the other person – even and especially in conflicts

The Many Roles of Individual Members of Staff

According to Dahrendorf (1973), a role is defined as the entire set of expectations placed on the incumbent of a position by other people or organizations.

Whoever occupies a **social role** is therefore faced with certain expectations regarding his or her behavior, appearance, even personality. These are “objective” in that they are independent of the particular person in question and refer solely to his or her position. The role profile defined by these expectations is virtually mandatory for the holder of that role, as it is determined by his or her environment and cannot be influenced to any great degree by the person himself or herself.

The mingling of a target or task-oriented project organization with everyday business in the regular line organization leads to a multitude of different roles. Depending on the size of the company, this can mean that people need to fulfill their many roles successfully and with an acute sense for their limits and delineations. In traditional matrix-based project organizations, it is quite common for ambiguity to arise out of this confusion of multiple roles in individual people:

Example

At Acme Enterprises Ltd., Mr. Doe is a Product Unit Manager in the R&D team, which also puts him in charge of the resources of the engineering section. His employees are usually employed as team members in several other projects. In addition to their routine engineering duties, some of his engineers are also working as project leaders or sub-project leaders themselves, although Mr. Doe likes to reserve some important A-projects for himself. This gives him a double role as **program manager** in his product unit and as A-project manager. Since he is currently engaged in several projects at once, he can also be considered a multi-project manager. In his role at the helm of his product unit, he is also a member of the project control circle and the program committee and is active in project portfolio management at the company. He is in charge of issuing the company’s project assignments – in some instances, to himself and to the engineers working under him in the line organization. A number of his more high-profile engineers are also entrusted with A-project management responsibilities. This makes them his equals in the project organization –

although he remains their **disciplinary superior** in the line organization. Mr. Doe reports directly to the CTO, who again occupies his normal line role and roles as member of the project portfolio circle and various program committees and is active in overseeing project management in general. As his superior in the line organization, the CTO conducts regular performance target reviews with Mr. Doe whose place in the management of the R&D section gives him authority over the resources in this department, which he allocates in discussions with his A-project management peers. These A-project managers are, at the same time, his disciplinary subordinates and the actual people who are meant when speaking about “engineering capacities”.

This practical example illustrates the “schizophrenia” which members of any project organization will frequently encounter. If **communication is not appropriate for the roles** in this **complex system of roles**, conflicts and demotivation are virtually inevitable. This needs everybody to have a very acute sense for their roles, the authority and competences they give them, and the expectations that stakeholders have of them in return.

Example

How should an engineer, who is simultaneously A-project manager of a development project, understand his disciplinary superior, a product unit manager (who is also a member of the program committee and member of the project control circle, himself an A-project manager etc.) when he asks him: “How is the schedule for your project coming along? Are you using the engineering capacities you earmarked for your project?” Who, that is, which **role** is speaking to him?

- (a) Is it the engineering manager in the line organization with his authority over the resources, wishing to check up on and revise his staffing plans?
- (b) Is it his disciplinary superior, wishing to get a sense for the performance of his employee before the next performance review or target-setting cycle?
- (c) Is it the manager or colleague – irrespective of whether he is based in the line or the project organization – wishing to help the A-project leader with some coaching advice?
- (d) Is it another A-project manager, looking urgently for any engineering resources not used by his peers?

This shows the high expectations placed on all people involved – first and foremost, the leaders in charge – when it comes to communication that is unambiguous and appropriate in terms of their roles. People’s motivation and belief in their leaders will suffer if one A-project manager, looking for free engineering resources, relies on the ambiguous confusion of the roles of line managers, holders of certain resources, members of project steering committees, and other project managers to take away the capacities he needs from other A-project managers or realigns the priorities without conferring with operational or strategic project management.

In order to avoid falling prey to the **trap of role-confusing communication**, it helps to prepare by asking certain **questions** before the start of any discussion of this nature.

Checklist. Questions to Prepare for Role-Fitting Communication in Projects

1. Do the **contents** refer to a project or a line topic?
2. Which **role** am I occupying when I want to / have to communicate?
3. What is the role of the **recipient**?
4. What are the **long-term** consequences of the content and style of communication in terms of
 - the aspect under discussion,
 - my role and the role of my counterparts and
 - the potential effect on other stakeholders?

Ambiguous roles in communication have more than a cultural or behavioral effect (on the level of **communication behavior**). They also blur the lines in the established structures (on the level of **communication procedures**), endangering the effectiveness and efficiency of both the line and the project organization. It frequently happens that meetings in a company's line organization (e.g. department meetings) are also used as a forum for discussing projects or reporting on their status (project steering circles), simply because identical groups of people are involved, and the time just seems right. The supposed efficiency of such "**oh-look, a discussion**" only serves to create even more ambiguity in the roles in communication. This also often leads to more and more people getting involved than would actually be required for the purpose: The project managers are sitting through interminable discussions of line issues without purpose or contribution, and the other participants have the same experience when the debate turns to projects. Both groups of participants will soon lose motivation to take part in "never-ending, disorganized meetings" (the level of **communication behavior**).

4.4 Conclusion

This chapter has shown that any lasting success in projects needs to be built on a basis of comprehensive, exhaustive, and, above all, **correct information and organization** within the project organization and beyond its confines (Hoegl and Gemuenden 2001). Creative opportunities can be found in the communication strategies, structures, culture, and practices. Psychologically qualified project coaches and process consultants can offer many effective means to support this.

The message is simple:

- ▶ Successful project management is communication management first and foremost!

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Katrin Winkler and Heinz Mandl

Abstract

Current discourse about knowledge management in companies often suffers from doubts about the actual benefits of the concept when applied in practice. Malik further highlights this trend in his statement “Knowledge Management – even this King is naked” (Malik (2001) Wissensmanagement – auch dieser Kaiser ist nackt. Manager-magazin <http://www.manager-magazin.de/koepfe/mzsg/0,2828,169723,00.html>. 23 Nov 2014).

In the context of this article, we will not only present concrete knowledge management instruments and examples, but also describe the degree to which knowledge management is merely viewed as an end in itself or believed to truly provide added value in the context of project management activities.

5.1 The Problem: Handling Knowledge in Projects

If one looks at the following definition of knowledge management, it becomes apparent that it already precludes the idea that knowledge management is implemented as an end in itself:

According to a general **definition** by Bullinger et al. (1998), knowledge management is basically defined as the conscious, responsible, and systematic handling of the resource of knowledge and the purposeful utilization of knowledge in organizations. Knowledge management in organizations is therefore not an end in itself, but serves as a basis for optimizing already existing business processes.

K. Winkler
University of Applied Science, Kempten, Germany
e-mail: drkatrinwinkler@gmx.de

H. Mandl
Ludwig-Maximilians University Munich, Munich, Germany
e-mail: heinz.mandl@psy.lmu.de

Even the projects conducted in organizations serve to support or optimize business processes by using project management to break complex general tasks into small, manageable elements (Rinza 1998). In order to implement projects in the most efficient manner possible within the prescribed timeframes, it is important to handle the **knowledge resource** right. This is also expressed in the highly pragmatic description of knowledge management by Gorelick et al. (2004), who define knowledge management as a systematic approach through which access to relevant knowledge and experiences is optimized for individuals and teams.

- ▶ Knowledge management is a systematic means for accessing to relevant knowledge and experiences optimized for individuals and teams.

The first section of this chapter describes and provides examples for what knowledge management means in a project context. The second part introduces knowledge management instruments that help implement knowledge management in project management activities. The chapter ends with a discussion of how knowledge management is implemented in the context of real projects.

5.2 Background and Relevance from a Psychological Perspective: The Theoretical Framework for Knowledge Management

5.2.1 Stimulating and Inhibiting Factors in Collective Information Processing

In addition to traditional project management tasks like planning, managing, or supervisory functions, the successful **implementation of projects** is also dependent on other tasks, such as managing the employees working on the project or coordinating collaborative activities (Rinza 1998). These tasks are relevant during all phases of the project lifecycle and, to a large degree, determine the success or failure of a project. Project processes can be roughly divided into the following **four phases**:

Project Phases According to Rinza (1998)

- Project Planning
- Team Composition
- Project Implementation
- Project Management

Knowledge management is not a panacea for project management, but rather a complementary measure that helps optimize processes during all **project phases**.

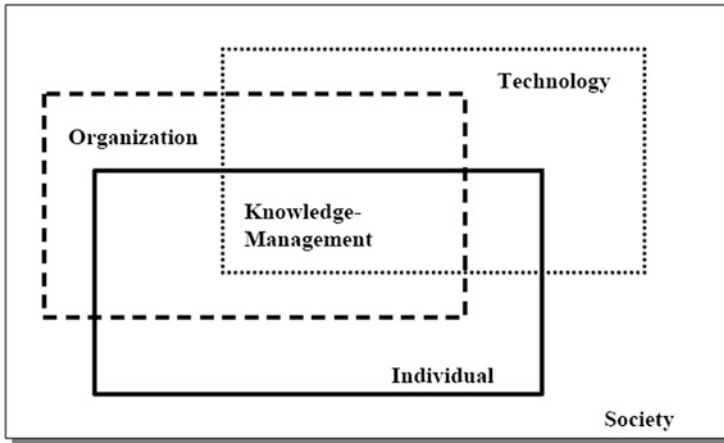


Fig. 5.1 The three components of knowledge management (From Reinmann-Rothmeier and Mandl 2000)

The **Munich Knowledge Management Model** comprises three components: individuals, organizations, and technology (Reinmann-Rothmeier et al. 1999).

These three aspects are also of central importance for project management activities in all project phases (Fig. 5.1). With respect to the **individual**, the knowledge management perspective in the project context is mainly concerned with staffing the project teams with the organization's members who have the relevant knowledge, skills, and competences to conduct the project efficiently as well as the ability to initiate **continual learning processes** in projects (Milton 2005). On the level of the **organization**, it is of central importance from a project perspective that the necessary structural requirements for sharing knowledge within the project are available and that a context is created which enables the knowledge resource to be handled more easily. The third component, **technology**, refers to the implementation and design of information and communication infrastructures and tools that support knowledge-based processes efficiently and in a user-friendly manner (Reinmann-Rothmeier et al. 2000). These technical tools are the basis for successful project work, especially within globally operating companies (Sect. 5.3).

Following on from this general introduction to knowledge management in the project context, the next section will introduce instruments that can be used to support knowledge management in the various project phases.

5.3 Footholds for Improvements: Instruments That Support Knowledge Management in Projects

Knowledge management instruments can be utilized in a variety of ways. The following paragraph describes a selection of instruments, arranged by the project phase in which they have the greatest influence on the success of the project.

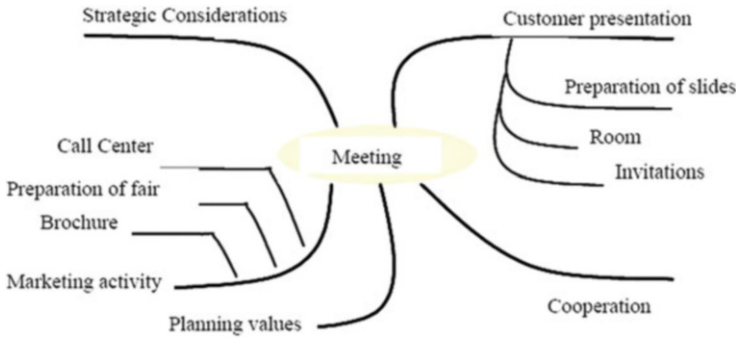


Fig. 5.2 A sample a mind map

5.3.1 Stimulating and Inhibiting Factors in Collective Information Processing

In order to be able to work with a project team and purposefully plan and define a project, it is absolutely necessary to develop a common understanding of the complexity of the topics at hand (Milton 2005). To do so, instruments of **knowledge representation** can be especially helpful, such as mapping techniques, since they help form a common starting point for discussions regarding the **project's definition**.

Mapping techniques provide an outstanding means for consolidating and linking up large sets of information (Probst et al. 2000). The following mapping techniques provide an initial overview of several options for representing knowledge (Nückles et al. 2004).

Mind Mapping: Gathering and Pre-structuring Ideas

The **mind mapping** method that was developed by Tony and Barry Buzan (2002) is a suitable means for collecting ideas, for structuring and further exploring a topic, or for showing the connections and interrelationships in it. The mind map immediately provides a good, reliable, and comprehensive overview of related topics (Buzan and Buzan 2002). When applying this method, ideas are given structure from the outset. To highlight an example, this method is particularly suited to taking notes quickly and efficiently during a lecture or seminar. In the project context, the method can be used at the start of a project to gain an initial overview of what the project may need to consider (Fig. 5.2).

The software program “MindManager” provides users with the capability to create mind maps on their computers. The specific advantage of this is that the branches of the map can be moved or edited quickly and easily. Figure 5.2 shows a mind map on the topic of mind mapping that was created by using MindManager.

Concept Maps: Structuring Complex Processes or Problems

Novak (1998) developed **concept maps** as a suitable tool for structuring complex situations or problems to make explaining them more effective (Fig. 5.3). During

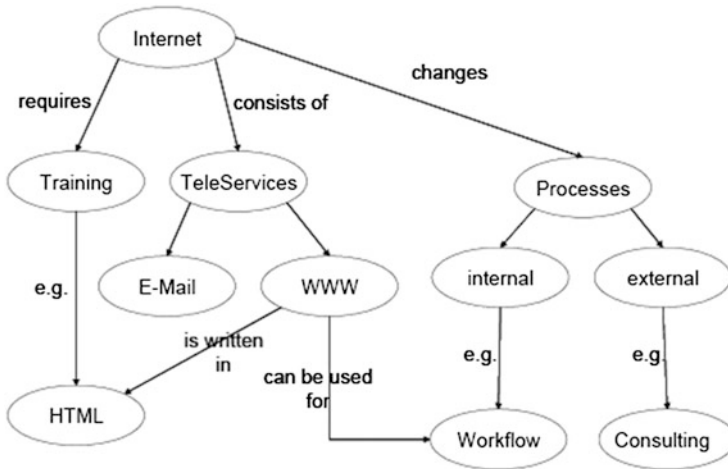


Fig. 5.3 A sample concept map (From Probst et al. 2000)

project meetings, such maps can be used as an easier means for depicting the complex relationships between different problems. By contrast to mind mapping, concept maps reveal logical relationships and connections. For example, Fig. 5.3 clearly shows that, in order to use the internet, the user will require training on the subject of HTML.

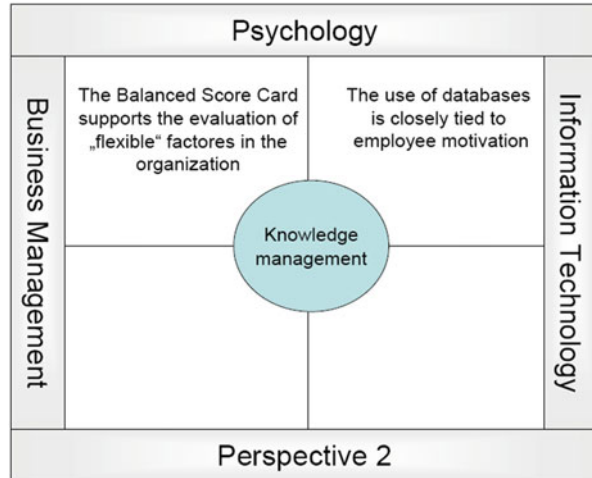
Integration Maps: Integrating All Important Information and Determining Key Priorities

This type of mapping technique can be used to integrate a numerous pieces of information and to determine key points. Eppler's approach (1999) has the core topic placed in the center circle (Fig. 5.4).

The core is surrounded by four boxes that interact with four relevant perspectives. Each of these four quadrants holds information that links up two of the four perspectives. In complex projects in particular, it is often important to include all participants and their various perspectives, in order to avoid resistance (see also Tarlatt 2001). The integration maps provide a means for making different perspectives transparent and relating them to one another. For example, the relationships between the topics of business management, psychology, information technology, and knowledge management are not always immediately recognizable. Examples that link these seemingly separate perspectives can quickly illustrate the interdependencies between each of the individual areas (Fig. 5.4). In projects, this process is especially helpful during the early stages or whenever conflicts arise, in order to provide common ground for the project team members to work with. This can also help prevent misunderstandings.

The mapping techniques outlined here represent only a small subset of possibilities. Further examples can be found in Probst et al. (2000).

Fig. 5.4 A sample integration map (From Probst et al. 2000)



5.3.2 Knowledge Management Instruments That Support Team Composition

The project definition phase concerns not only the definition of the project's goal, but also aspects such as organizing the project and coordinating its processes (Rinza 1998).

“**Knowledge cards**” can be an especially helpful instrument for making the entire organization of the project clearer and, specifically, for determining the **composition of the project team**. With the help of knowledge cards, it becomes possible to gain an overview of the project team members' key areas of competence. Knowledge cards therefore support the human resource aspect of the project.

Knowledge Cards: Revealing the Knowledge Available for the Project

Knowledge cards serve to increase transparency about the knowledge that exists in the company. In addition, knowledge cards enable people to identify and flag **knowledge carriers** or sources and make it easier to organize new knowledge. A number of different knowledge cards templates have been developed for use in practice. Eppler (1997) broadly defines knowledge cards as graphical indexes of knowledge carriers, assets, sources, structures, or applications. What all of the various types of knowledge cards have in common is the visualization of knowledge, the hypermedia concept, and – often – the technology-driven design of business processes via workflow systems, groupware, or the internet. A visual representation of knowledge forms a starting point for this coding process.

Knowledge Carrier Cards: Revealing the Knowledge Available in Each Project Team Member

In the context of project management, the so-called **knowledge carrier cards** (knowledge topographies) are useful tools, since these provide an overview of the

Individuals	Use of computers	Technology transfer	Billing	Marketing
Goltz, Karl	██████████	██████████		
Borer, André		████		██████████
Brenner, Otto	████		████	
Deller, Max				██████████
Krause, Uli	██████████	██████████	████	████
Gross, Peter	████			██████████
Isler, Tanja			██████████	██████████

Fig. 5.5 A sample knowledge carrier card

competences of potential project team members. Knowledge carrier cards visually depict which type of knowledge (e.g. marketing knowledge) is available in which form and in which knowledge carriers. Such a system enables project members to quickly gain a sense for what individuals know, which areas they are proficient in, or how detailed their knowledge is. The more specific this overview of the knowledge and competences of potential project team members, the more quickly a suitable and effective team can be put together. Many complex projects benefit from an interdisciplinary approach, as it incorporates as many different backgrounds of the project team members as possible in order to make multiple perspectives available for the work on the project. Figure 5.5 provides a sample overview of a company’s employees and the areas of focus in which these employees are able to draw on specific competences and knowledge.

5.3.3 Knowledge Management Instruments that Support Project Implementation

During a **project’s implementation**, communication and coordination between team members takes on a particularly central role. The mind-mapping technique may also be helpful as an effective structuring aid for designing face-to-face meetings in this context. It is increasingly common in business for teamwork to take place on a globally dispersed level. From a knowledge management point of view, groupware and group information management systems can promote communication and coordination in such contexts (Hopfenbeck et al. 2001).

Groupware and Group Information Management

The terms “**groupware**” and “**group information management**” form part of the concept of “computer-supported collaborative work” (CSCW). The purpose of these technologies is to utilize information and communication technology to support collaborative work between individuals and groups over the internet and to facilitate the sharing and transfer of knowledge (Hopfenbeck et al. 2001).

The means of interaction in such systems are often text-based communication, usually referred to as computer-mediated communication (CMC). It is possible to use local communication networks (LAN), organization-internal networks (intranets), or global communication networks (internet) (Thiedeke 2000). There are two different types of computer-mediated communication: asynchronous (time-delayed) and synchronous (simultaneous) communication (see Döring 2003).

In **asynchronous computer-mediated communication**, the message reaches the recipient with a time delay, since it is typically written or recorded (e.g. email, mailing lists, news groups).

In **synchronous computer-mediated communication**, a reciprocal communication link is in place. This means that the participating communication partners are active at the same time, which allows for immediate feedback (e.g. chats).

Whether teams meet face-to-face or virtually, they need a space where team members can meet. For primarily virtual teams, there are a number of different potential communication channels, ranging from mailing lists to chat rooms or team websites.

In ideal cases, teams use a combination of synchronous and asynchronous communication through online tools to support team members. Bach et al. (2000) were able to separate groupware systems into four sub-areas as presented in the following overview.

Four Sub-areas of Groupware Systems (from Bach et al. 2000)

- **Communication**, e.g. through email, video conferencing systems, or bulletin board systems for closed groups
- **Shared information areas**, e.g. using hypertext systems, multi-user databases, or bulletin board systems for closed groups
- **Workflow management**, e.g. systems that support modeling, simulation, implementation, or management of workflows
- **Workgroup computing**, e.g. scheduling and appointment systems, group editors, systems that support meetings and decision-making processes

There are various providers, such as Lotus, Opentext, or Microsoft, who offer full-scale groupware systems designed to support teams.

5.3.4 Knowledge Management Instruments That Support Project Monitoring

Keeping track of the current status of a project throughout its lifecycle and identifying and potential problems are central elements of project management in all project phases. A knowledge management instrument developed specifically for this essential review process is called lessons learned. As an instrument, lessons learned promote the development of critical project knowledge by the project team's members and lets them share experience and knowledge.

Lessons Learned: Project Team Members Reflect on Experiential Knowledge

Lessons learned utilize the experience gained in the context of one project phase as feedback to optimize processes for the next phase.

Lessons learned are defined as the knowledge gained on the basis of experience (e.g. project experience). Such experience can be positive or negative, making both mistakes and successes a source for lessons learned. To fulfill their purpose, lessons learned must meet the following requirements:

- Lessons learned must be relevant for follow-on projects and have a tangible effect on actions.
- Lessons learned must be factually and technically correct.

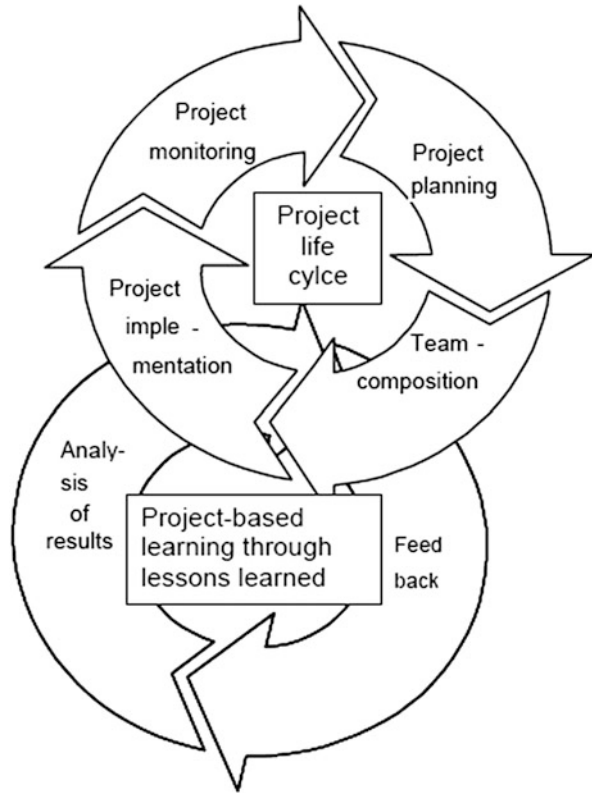
Figure 5.6 shows where lessons learned are created in the context of a traditional project process.

In the traditional project lifecycle, the team members analyze the results of their work and record their insights. In doing so, the team members ask themselves what critical experiences they have encountered in the project and what future teams should consider when dealing with similar problems (see Milton 2005). It is only through such exploration that different evaluations can gain visibility and then be used to the employees' advantage. In order to document project experiences in a meaningful form, a uniform structure for documenting these experiences must be defined in advance. In addition, a person should be entrusted with responsibility for entering the information (e.g. into a database). The individual responsible for lessons learned might, for example, be selected by the members of the project team.

- ▶ In the process of creating lessons learned, critical success factors are systematically uncovered that could be relevant when future projects face similar issues or circumstances. In addition, lessons learned offer the opportunity for others to utilize prior experience. In order to share lessons learned between different projects, it is important to document the reports in a lessons learned database (Milton 2005).

When documenting lessons learned, it is essential for all participants to be willing to admit and publicize their mistakes. This requires a corporate culture

Fig. 5.6 Creating lessons learned



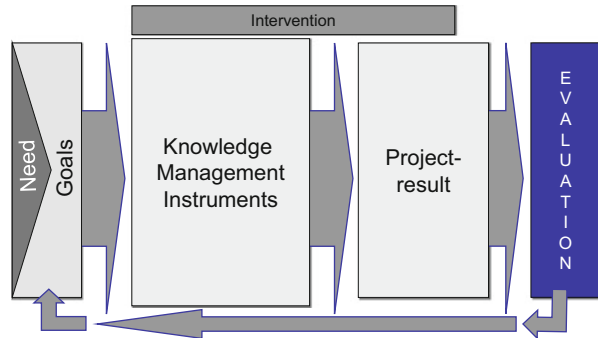
that **accepts mistakes** to a certain degree. In order to develop such a culture, people can be given examples or incentives for treating mistakes constructively (Reinmann-Rothmeier et al. 2001).

5.3.5 Future Perspectives

The knowledge management instruments presented here are only a subset of the potential interventions that can be used to support project management from a knowledge perspective. With respect to the actual implementation of knowledge management interventions in a project, it is often helpful to use a knowledge management process model (Fig. 5.7).

According to Probst et al. (2006), knowledge management is not an end in itself, but rather meant to support and optimize business processes. At the core of this idea stands the will to support project management in order to lead a concrete corporate project quickly and effectively towards its objectives. The need to use knowledge management measures has already been pointed out, at least at a normative level. In a real project, the statement of requirements should be as concrete as possible,

Fig. 5.7 Model of the knowledge management process



e.g. to shorten the duration of the project by x days. Working with this defined requirement, a concrete project management objective can be developed, e.g. limiting the number of face-to-face meetings of project participants, while maintaining high quality in the project's coordination. In order to measure meaningfully how project management improves from using knowledge management activities, the number of meetings and what is understood by high quality would need to be defined in greater detail.

To meet this goal, the various knowledge management instruments may be employed according to the needs and objectives of the project group. Using these instruments, e.g. the experiences from lessons learned and the continuous improvement of project processes, promotes the pursuit of the objectives as well as the quick and effective implementation of the project. Afterwards, it can be determined whether the intended result has been achieved, in this case, shortening the project's duration by x days.

Looking at the illustration (Fig. 5.7), it becomes clear that success is not measured by the effective or ineffective use of knowledge management instruments, but rather by the degree to which the overall objective has been achieved (see also Milton 2005). Knowledge management can only contribute to the optimization of business processes in this configuration and thereby not become an end in itself.

- ▶ The core of knowledge management is the optimization of business processes. The more specific the stated requirements are, the more efficient knowledge management will be when supporting the project.

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Project Coaching: An Effective Means for Successful Projects

6

Monika Wastian, Brigitte Dost-Tauschl, and Isabell Braumandl

Abstract

Over the past years, the challenges faced by the individual participants in projects have not only increased considerably in number, but also become more complex in their essence. Project coaching offers both project initiators and participants various means to meet those challenges and optimize project processes. This chapter describes what project coaching is, how it works, and how it contributes to the success of projects.

6.1 The Challenging World of Projects

According to the Project Management Body of Knowledge (PMBOK; PMI 2008, p. 5) a project is a “temporary endeavour undertaken to create a unique product, service, or result”. Most projects involve several individuals or even large groups of people, work groups, enterprises, or institutions. Accordingly, most projects inevitably encounter problems, since something new has to be created within a complex network of participants working under more or less uncertain and ambiguous conditions from the outset.

Studies have shown that **the flow** (Wastian & Schneider 2007) **and the success of a project** (Gemünden and Lechler 1997) are influenced by the **behavior and competences** of the participants, the **design of processes** (project management, communication, information, cooperation), and a number of **external factors and**

M. Wastian (✉)
Institut für Organisationspsychologie, Munich, Germany
e-mail: wastian@inforp.com

B. Dost-Tauschl
Coaching & Consulting, Munich, Germany

I. Braumandl
CoBeCe, Regensburg, Germany

conditions. For example, communication and the sharing of information are prone to fail, making it a primary target for improvement, especially in recognition of the fact that they are the most important processes in projects and thus contribute even more to the project's success than other critical processes, such as planning and controlling (Gemünden and Lechler 1997).

In this chapter, we will first focus on the influence of stakeholders on projects, either as active participants who directly work on processes or as outside stakeholders who define the conditions under which the project has to be run and the objectives that are to be achieved. We will then introduce project coaching as a method that helps the participants manage their projects more smoothly, become aware of the critical success factors in the project, cope with individual challenges, and make better use of opportunities, both for the project and for themselves. Finally, we will show how project coaching can be successfully implemented and applied to a project.

6.1.1 Stakeholders and Their Influence on Projects

Management

Top management is the most critical body of people that can be considered a success factor in projects. They have an influence on the composition of the project team, on its participation in decision-making, and on the formal power given to the project leader (Gemünden and Lechler 1997). The control over the team's composition as well as the information and communication activities in the project, which in turn also influence the success of the project (Gemünden and Lechler 1997), depend on the **positional power of the project leader**, i.e. the extent of his/her formal authority to make decisions and issue instructions. Management also decides on allocating the necessary **resources** (people, money, time, power) and by doing so determine the essential parameters for the initiation, the course, and the eventual feasibility of projects.

Project Leader

The project leader is the central person in the project. He or she is responsible for project management, i.e. the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirement". It comprises the processes of "initiating", "planning", "executing", "monitoring and controlling", and "closing" the project (PMI 2008, p. 6). Leading a project thus encompasses not only technical aspects of project management, such as planning, budgeting, analyzing, controlling etc., but also the leadership of people.

Accordingly, the International Project Management Association (IPMA) as well as the Project Management Institute (PMI) provide inventories – i.e. the ICB V3.0 (IPMA Competence Baseline, Caupin et al. 2006) or, respectively, the PMCD (Project Manager Competency Development) framework (PMI 2007) – that describe a variety of competences required in project managers. Many of these are soft skills rather than technical competences. They include, for example, **social**

and political skills and a role-appropriate and situationally adequate leadership. As the project manager seldom has disciplinary influence over the project staff, he or she should be familiar with adequate strategies to **motivate project staff** and promote their commitment. These requirements are in contrast to the fact that many project managers come from specialized careers, where they have had little opportunity to develop social, communicational, or leadership skills to the extent required.

In addition, the project manager is sandwiched in between the contracting entity and the team, and their different interests can cause **role ambiguity**. Coping with this pressure and the various demands requires considerable self-management skills.

- ▶ Promoting soft skills and competences beyond immediate professional skills, reflecting on one's own role as well as improving the assertiveness and self-management of project managers are important issues for project coaching.

Project Teams

By contrast to work teams in the line organization, project teams exist only **temporarily**, and their members are mostly recruited from different business areas and disciplines. Often, they do not only face novel, unique, and complex tasks, but also have to tackle problems related to technical and cultural diversity for which the team members often lack the required cross-cultural competences. While great diversity in the team members' skills and experiences can be beneficial to the project, this stress factor can threaten the group's cohesion. Additionally, when roles and responsibilities are not clearly defined, **role conflicts** can easily arise within the team.

Aside from this potential for conflicts, dysfunctional group processes (such as "groupthink" or "hidden profiles") can affect communication and the process of forming opinions and thereby endanger the success of the project in its entirety.

- ▶ Working with virtual teams poses a particular challenge, because a high degree of electronically mediated communication can lead to a reduction of psychological inhibitions and threaten personal bonds. Moreover, the opportunities for getting to know each other informally are greatly limited in virtual teams.

As the project team contributes essentially and, in terms of efficiency, even outstandingly to the success of the project (Gemünden and Lechler 1997), it is important to develop and promote the skills of the team members as well as the group and communication processes accordingly. Nevertheless, team leaders have to make sure that these tasks are not assigned to the wrong people and that the norms set for the team remain compatible with the standards of the organization. Project coaching thus focuses on appropriate human resource development and selection, team development, and process improvements.

Other Stakeholders

According to ICB V3.0, the **success of project management** is “the appreciation of the project results by interested parties and environments” (Caupin et al. 2006, p. 30). The progress and success of projects are determined not only by management, the project manager, or the project team, but also by other stakeholders, particularly by customers.

Unfortunately, too often not all key stakeholders are involved to an appropriate degree in the project from its beginning. This can lead to conflicts as the project moves on. In addition, the **expectations and needs of stakeholders can change** during the project, or different stakeholders might be pursuing **incompatible goals** (Van de Ven et al. 1999).

Project coaching can help ensure proper **consideration for stakeholders’ needs** and **systematic stakeholder management**.

6.2 Forms, Fields of Application, Features, and Effects of Project Coaching

6.2.1 Project Coaching: A Reflective Method for Systematically Supporting Projects and Project Participants

In recent years, publications in the field of project management have increasingly recommended the use of project coaching (e.g. PMI 2007), yet without providing a precise description or shared understanding of what project coaching is, not to mention a clear-cut distinction between coaching and consulting. However, this is a necessary prerequisite for evaluating not only the possibilities and the potential, but also the limitations of coaching for a project and for gaining the maximum benefits from project coaching.

Extending Greif’s (2007) combination of the existing definitions of coaching, we define **project coaching** as the systematic facilitation of result-oriented reflection on the self, the problem, or the solution as well as counseling for individuals, groups, or organizational units on the basis of psychological methods and within the context of or in association with projects. We distinguish three types of project coaching: **Individual, team, and process coaching** (Fig. 6.1).

Project Coaching Is Applied to Enhance

- the achievement of objectives that are congruent with the self, the team, and the project,
- the conscious self-transformation and development of individual project participants (e.g. project leaders, sponsors, team members) as well as project teams, or
- the improvement and promotion of project processes.

Individual coaching: person-centered issues	Team coaching: team-centered issues	Process coaching: process and context-centered issues
<ul style="list-style-type: none"> • The person's role in the project • Values, ambitions, goals • Tasks • Competences and leadership behavior • Social relationships • Career plans • Performance and success • Self-management and work-life balance • The implications of project constraints, context, critical phases, and incidents for leadership 	<ul style="list-style-type: none"> • Team development • Cooperation and cohesion • Team roles • Team norms and standards • Conflicts • Team competences and behavior • Creativity 	<ul style="list-style-type: none"> • Planning and strategy-related processes and structures • Human resource related processes and structures • Social and communicational processes and structures • Learning, transfer, and innovation

Fig. 6.1 Three types of project coaching and their typical issues

- ▶ Project coaching supports the preparation, implementation and following up on projects. The various types of project coaching can also be performed in parallel and overlapping each other, depending on the needs and the phase of the project.

The complex scope of **process coaching** can be refined further as shown in the following table.

<p>Issues in Process Coaching</p> <p>Planning- and Strategy-Related Processes and Structures</p> <ul style="list-style-type: none"> • Project objectives and their relation to the overall strategic aims • Embedding the project in the organizational context • Project controlling and control boards • Project planning • Process quality, project progress, and project goal achievement • Risks and crises <p>Human-Resource-Related Processes and Structures</p> <ul style="list-style-type: none"> • Responsibilities, power, functions • Personnel selection (project manager, team) • Processes and methods for performance appraisals and human resource development (project manager, team)

(continued)

- Resources and context
- Working conditions

Social and Communicative Processes and Structures

- Involving stakeholders, clarifying expectations, securing consensus
- Cooperation and communication with external experts (e.g. consultants), subcontractors, or other partners
- Conflict mediation
- Communication processes, information processing, and opinion forming, regulation of dissent and consent, creating acceptance

Learning, Transfer, and Innovation

- Learning conditions
- Creativity-enhancing processes and framework conditions
- Verifying learning transfer
- Identification of current and future learning needs
- Knowledge management
- Identification of potential for innovation, future opportunities, future project ideas
- Identification of weaknesses and ways to eliminate weaknesses in future projects

The project coaching process from reflecting on to achieving the goals associated with the topics outlined in Fig. 6.1 includes the steps of **assessment**, **planning**, as well as **action and support**. In addition, it comprises formative and summative evaluation (i.e. continuously monitoring and controlling the client's progress and finally measuring the achievement of his or her coaching goals) and measures to consolidate the effects of coaching and ensure sustainable results.

6.2.2 Characteristics of Project Coaching

Project coaching represents an independent contribution to support projects that is not covered by other forms of counseling, such as consulting, or by conventional forms of human resource development.

- ▶ The outstanding features of project coaching are essentially psychological expertise, systematic stimulation of self-reflection, its embeddedness in the project context, its synchronization with project processes, and its attempts to unleash the client's own resources.

Psychological Expertise Project coaching touches on issues related to the human factor and to people-process interfaces in projects, namely on human behavior and experiences as well as on processes that are shaped by people or have an effect on

them. Project coaches' psychological expertise (refer to the requirements for project coaches in Sect. 6.3.2) covers the topics that are the subject of this book. It also provides an important **complement to the project-specific expertise** of the project staff or external consultants and thus links up the technical and human or social requirements in the project.

Systematic Stimulation of Reflection Although innovation projects offer many opportunities for learning, project participants and organizations hardly ever make real use of them. In many projects, personnel participation is fluid and characterized by the high turnover of internal and external experts; instead of capturing their experience and gains in expertise when they leave, organizations rarely introduce measures to secure the knowledge transfer (Dornblaser et al. 2000). With the help of project coaching, this potential can be exploited, because stimulating reflection processes systematically enables **higher-order learning**.

Embeddedness in the Project Context and Synchronization with Project Processes Contrary to the methods used during conventional training sessions or other measures of staff development, coaching for project managers or teams takes place within the project context. This means that the topics and objectives are determined by the project's requirements, and everything learned can be **applied directly to everyday project work**. This type of situated and authentic learning has proved particularly effective and sustainable (Gruber et al. 1995).

Unleashing the Client's Resources Project coaching does not provide off-the-rack solutions or advice. Rather, the project coach acts as a catalyst who gives clients access to their "unthought known" (Diamond 2008). He or she assists them in identifying their individual resources, in adapting them to the situation at hand, and in applying them successfully. This approach helps to minimize resistance to change, for example in organizational development projects (Diamond 2008), because clients consider themselves part of the solutions that will be implemented.

6.2.3 Effectiveness of Project Coaching

For **individual project coaching**, the state of research in executive coaching is relevant. Although there is still a lot of research to be done, study reviews leave no doubt that "coaching works", in the sense of moderate to large gains in executive skills and/or performance and "a wide array of individual and organizational outcomes" (De Meuse et al. 2009, p. 128), some of which are listed below:

Positive Effects of Coaching (Greif 2007; De Meuse et al. 2009)

- Setting and achieving goals, decision-making
- Awareness of problems and solutions
- Employee job and life satisfaction and subjective well-being
- Enhanced self-confidence, self-awareness, and self-understanding
- Openness to new experiences and extraversion
- Improved leadership behavior and effectiveness
- Improvements in professional competence, social and communicative skills, and conflict management
- Increases in performance and productivity
- Augmentation of the effects of other interventions (e.g. when coaching follows leadership trainings or 360° feedbacks)

While research on coaching is still in its infancy, psychological research has already dealt with approaches for improving team processes and the performance within teams for many years. The **effectiveness of team coaching** has been confirmed by numerous investigations - usually labeled “team training” or “team-building” because the term “coaching” was rarely used in the 1970s and 1980s. A meta-analysis of 48 studies has shown considerable effects of team training and development activities on team processes as well as on the behavior, attitudes, and performance of team members (Klein et al. 2006). According to Salas et al. (2007), the most effective team training interventions proved to be those, where team members learned to **alter their coordination strategies** and to **reduce the amount of communication** necessary for successful team performance. Moreover, team performance increased when the team coaching focused on the **assessment and solving of team problems** (for team diagnosis, see Chap. 10, Kauffeld, Lehmann-Willenbrock, & Grote). However, no effects were found for so-called cross-trainings that include task rotation for team members to make them familiar with the various requirements that exist in their teams.

- ▶ It is mainly the reflection-focused interventions – i.e. specifically those that match the definition of team coaching – that are known to be most effective.

To summarize, the **effectiveness of process coaching** is not an easy task since its scope is far wider than that of project coaching for project managers or teams. The issues dealt with in process coaching are just as multifaceted and heterogeneous as is the world of projects. Each process coaching intervention represents a unique case and usually requires a complex array of individual measures specific to the process, the organization, and the requirements in question. However, there is evidence of the effects of both **specific approaches**, which are elemental to process

coaching, and of **complex process interventions**, which *consist* of process coaching or include it: organizational development.

For example, the **process that is typical of coaching** – i.e. starting with a thorough analysis of requirements (current state, target state), followed by defining the criteria for measuring progress, and finally feedback and reflection – has proven to be successful. This manifests itself in an increased commitment of employees to the organization, improved leadership style, and in a general increase in productivity as has been shown for survey feedback approaches (Björklund et al. 2007) or, respectively, ProMES (Productivity Measurement and Enhancement System: Pritchard et al. 2008).

We know that **organizational development interventions** have a positive effect on employees' satisfaction and their attitudes towards others, their job, and their organization (Neuman et al. 1989). They also increase organizations' productivity (Guzzo et al. 1985). Again, it appears to be process coaching methods applied in organizational development that are most effective, either as stand-alone interventions or in combination with other procedures. Interventions tapping into organizational processes controlled by humans – so-called human-processes approaches – have proved to be more effective than techno-structural techniques, which focus on changes in job designs or the work environment. The most effective interventions – with respect to both, employee satisfaction and attitudes (Neuman et al. 1989) as well as productivity (Guzzo et al 1985) – combine human-process and techno-structural elements.

6.3 The Implementation and Application of Project Coaching

6.3.1 Prerequisites for Successful Project Coaching

Based on the findings of research into training (Alvarez et al. 2004) and coaching (Greif 2007), we can assume that the following prerequisites contribute to the effectiveness of project coaching for individuals and teams:

Checklist. Prerequisites for the Success of Individual and Team Coaching in Projects

1. Analyzing the expectations about the coaching intervention at the beginning of the measure: The results of this analysis determine the coaching method, focus, and evaluation criteria for measuring the success of the coaching.
2. Participants' individual characteristics and abilities: Perseverance, change readiness, and reflexivity are particularly important.

(continued)

3. The context in which the project coaching is to take place as well as the characteristics of the organizational environment (organizational climate, the selection of participants, standards and rules within the company etc.).
4. Characteristics of the coaching intervention itself, which has to be designed according to the preliminary analysis, individual characteristics of the participants, and the project context. In individual coaching, it is important that the coach appreciates and supports the client, activates the client's resources, and encourages him/her to engage in effective problem-solving and self-reflection.
5. Characteristics of the coach (refer to the requirements for project coaches in Sect. 6.3.2).

Additional prerequisites are required for successful process coaching:

Checklist. Prerequisites for the Success of Process Coaching

1. Planning and preparation of the process coaching (scope and objectives, stakeholders to be involved, processes, etc.)
2. Integrating relevant stakeholders
3. Management must support this approach (Joo 2005).
4. Management must demonstrate a behavior in accordance with the objectives of the measures already during the process itself.

As different challenges have to be overcome in the different project phases or the lifespan of the team (Salas et al. 2007), it is crucial to consider the **timing of the interventions** and to tailor the measures and methods to the respective project phase for all three types of project coaching.

6.3.2 Selecting the Project Coach

In their overview of research into executive coaching, Feldman and Lankau (2005) come to the conclusion that coaches

- should be **psychologists**,
- should **know the working environment** of their coachees (such as leadership issues, business and guiding principles, policies of the company or institution) and
- should have sufficient **professional experience**.

Studies show that, on average, coaches are 49 years old and have 24 years of work experience. Experience, integrity, trustworthiness, and a high level of personal maturity are considered crucial **requirements for being a successful coach**

(Joo 2005). In addition, a project coach must be familiar with project work and project management processes and tools (Berg and Karlsen 2007).

It is generally assumed that these qualities, together with the educational training of the coach, greatly influence the coach's choice of methods and his or her chances of being successful (Joo 2005). Therefore, **matching the coaching client** and his or her needs with the coach's experience and methodological background is an important aspect in coach selection. However, as one study has shown (Wastian, *in prep*), clients often do not or not sufficiently probe the coach's background in order to ensure a proper match. Instead, clients as well as coaching experts in human resources departments most frequently solely rely on references and on their gut feeling when they choose a coach.

Another relevant question is whether project coaching should be performed by an **external or an internal company coach**. Research has shown that external coaching is more successful than internal coaching and also yields a higher return on investment (Greif 2007). The advantage that internal coaches usually know the client's organization better is outweighed by a number of disadvantages, in particular:

- issues of confidentiality and self-disclosure,
- often insufficient coaching skills,
- role conflicts and lack of neutrality.

All these aspects influence the coaching's success, the acceptance of the project coach, as well as the results obtained in project coaching.

Most of all, a perceived lack of confidentiality and limited option for self-revelation are harmful to the coaching process and learning progress. This applies particularly to "remedial" coaching, e.g. for clients who did not meet competence or performance standards.

6.3.3 Timing of Project Coaching in the Project Process

Project coaching can be used at various stages during the process, i.e. before, during, and upon termination of a project. Each choice of timing has its unique objectives.

Timing of Coaching Activities

Preparatory Project Coaching

- Individual coaching of the project manager: Preparation for the project management assignment (for project managers with little experience or engaged in critical and major projects).

(continued)

- Individual coaching at a management level: Reflecting on the values, missions, goals, and their relevance for management strategies and upcoming projects.
- Process coaching at a management level: Opinion forming and strategy development for initiating a project or project alternatives, setting-up of processes and structures for the implementation of a project.

Project Coaching at the Start of a Project and in Critical Project Phases

- Individual coaching of the project manager and other project participants
- Team coaching.
- Process coaching: Accompanying project managers and teams at the start of a project; assistance in preparing and, if necessary, facilitating the kick-off or starting workshop as well as milestone and review workshops; reflecting on the project's progress and quality assurance concomitant with ongoing projects.

Coaching at the Project's Completion or Abortion

- To reflect on lessons learned, to ensure the transfer of acquired knowledge, and to plan next steps or goals.
- Individual coaching of the project manager and other project participants: individual topics.
- Team coaching: team issues.
- Process coaching: Planning and implementation of projects, process quality, contextual factors that have an impact on the project (including resources and working conditions), opportunities for innovation.

Project managers or their organizations tend to consider coaching as a tool to support the ongoing project or even as a remedy to cure the ills of projects or project managers in a crisis. However, the degrees of freedom and the means to shape and influence the project or to develop the project manager become fewer in the course of the project, shifting from anticipation and prevention to reaction and crisis management (Fig. 6.2) While the degrees of freedom, both for the project manager and his or her coach, are at their maximum before the project even starts, allowing them to deploy their full array of methods and competences, their scope of actions is limited to crisis management in the execution phases, when the workload and setbacks usually reach their peak.

- ▶ Coaching is therefore not only recommended during execution phases, but rather as early as possible – preferably before the project even starts.

Project coaching is also recommended **after the completion of a project**, because every project – whether successful or not – provides significant lessons and improvement opportunities for the project participants as well for the organization at large, which otherwise often go idle (Dornblaser et al. 2000). Reflections in process coaching

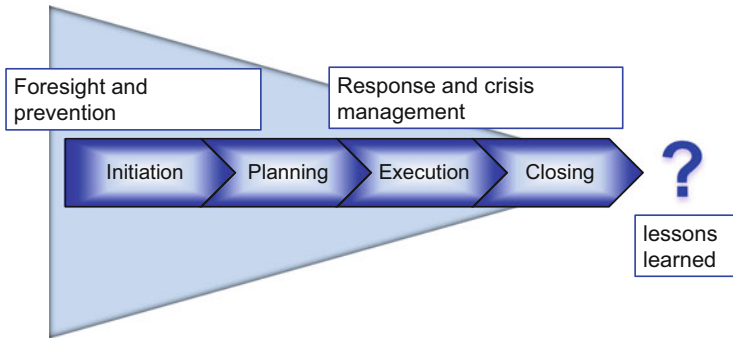


Fig. 6.2 Decreasing degrees of freedom in the project lifecycle and consequences for the choice of approaches in project management and coaching

could not only help develop this untapped potential. They would also open up early opportunities for product or process innovations or identify synergies with other processes in the company (for example, process or quality audits).

6.3.4 The Project Coaching Process

The typical process for individual and team coaching is shown in Fig. 6.3. During the **first meeting** the client's expectations and basic aspects of coaching are clarified. These include the roles, rules, and responsibilities (e.g. voluntariness, confidentiality, compliance) of the coaching participants. The coach outlines the coaching process (duration, methods, setting) and explores the client's expectations and coaching goals. When all issues have been discussed and agreed, the contract between the coach and the clients is signed.

- ▶ Since the evaluation of the coaching's success should not only take place at the end of the coaching, but throughout the entire process, evaluation and feedback for the client play an important role in the coaching process.

Continuous evaluation and feedback are used to assure **high-quality coaching**. They **support self-reflection** by allowing both the project coach and the client to continuously check up on their progress, to assess the pace and degree of goal achievement, and to adjust intervention methods as needed. However, this requires that the coach has carefully **assessed the coaching goals** and has set up measurable criteria for tracking performance. There should be a follow-up meeting between the coach and the coachee a few months after the completion of the coaching process to ensure lasting coaching results and to discuss possible further steps or new goals of the client. If necessary, another coaching contract can be agreed to deal with these new issues.

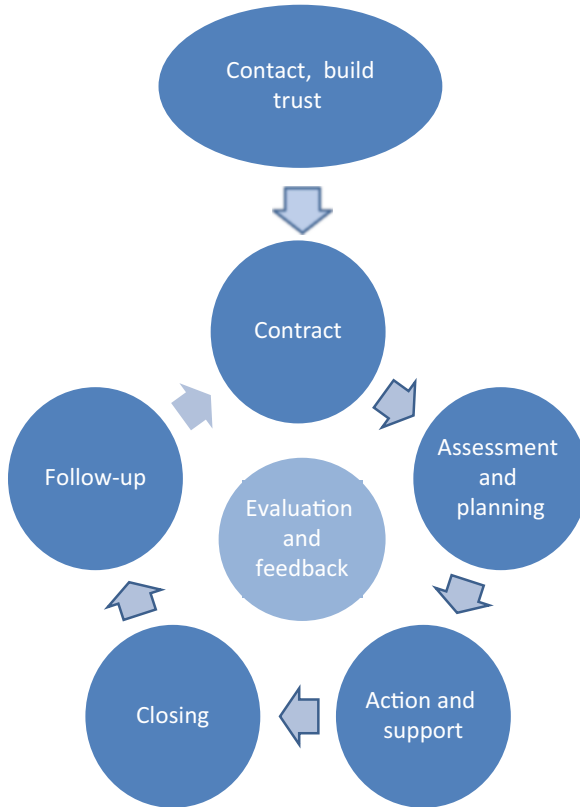


Fig. 6.3 A typical project coaching process

In general, the **procedure in process coaching** is similar, although often more complex (e.g. intensive preliminary discussions and several coaching cycles, if the coaching contract consists of several work packages or individual orders). That means that preliminary meetings and contracting are followed by the **assessment** of processes, interaction networks (e.g. stakeholder analysis) and contextual parameters, including the definition of respective coaching goals and **planning** the intervention. On this occasion, the coach specifies criteria and instruments for evaluating the progress and goal achievement in the process coaching.

For evaluations, **questionnaires** or **qualitative methods** (e.g. interviews or workshops with collaborating partners and other experts, observations) can be used. After each data collection and evaluation, the coach gives **feedback** to the client and other process participants, presenting the results and reflecting on them with the clients. Such feedback does not only serve as a validation of the data collected, but also represents a first important intervention. On this basis, further measures are planned, performed and – if necessary – optimized.

In complex processes, several project coaches or teams, consisting of coaches, consultants, or in-house experts, should work hand in hand.

6.3.5 Evaluating Project Coaching

According to the findings of training research (e.g., Alvarez et al. 2004), the effect of interventions can be assessed on the following levels:

1. **Level of participant reactions:** Questionnaires are a means to show whether the project manager or the team members felt that the coaching was **useful** and whether they were **satisfied** with it. Often companies, clients, and, unfortunately, also coaches (Feldman and Lankau 2005) are satisfied with merely measuring project success at this level. Yet, this approach is inadequate, since satisfaction ratings in particular do not necessarily correlate with the actual learning achieved (Arthur et al. 2003).
2. **Level of learning:** Learning effects in the course and at the end of a coaching should show up as changes in those dimensions which validly represent the coaching goals and the focus of the coaching interventions. Typical criteria used in this process are the participants' **behavior, knowledge, and task-specific self-efficacy**, i.e. their confidence in their ability to handle a particular task. The coach is not the only one to continuously assess these changes. It also makes sense for the client to chart the progress towards the goals in a coaching diary. In any case, the changes - or a lack thereof - should be addressed and reflected on during the coaching in order to adapt the process to the client's needs and ensure learning progress.
3. **Level of behavior on the job:** If the client succeeds in **transferring his/her insights from the coaching into everyday work situations**, it is possible to determine changes in the same behavioral criteria as in the coaching context. For instance, specific improvements in leadership behavior exhibited during a role play in coaching should also show through in the workplace. Changes in these criteria can be assessed in a similar manner as at the level of learning. For example, by the coach performing follow-up surveys, by the clients themselves continuing their coaching diary, or by superiors observing the client's behavior on the job.
4. **Level of results for the project or the organization:** Over time, the knowledge gained during the coaching process in the workplace and in work situations can lead to **measurable results for the project or the organization**. These can take many forms: cost reductions, lower error rates, shortening the duration of the project as well as better team atmosphere, higher employee satisfaction, lower absenteeism, etc. Accordingly, the success of project coaching can be measured even in the form of the main criteria of successful project management - balancing the triple constraints of budget, schedule, and quality - as well as the "softer" results.

Example

Project manager John Wilson hires a coach, since he is not satisfied with the performance of certain members of the project team. The coaching is meant to

enable him to express his criticism in such a manner that the employees start to perform their tasks better. In an initial analysis, the coach clarifies the project manager's objectives: The project manager would like to **improve his skills for providing critical feedback** to his employees, i.e. he wants to express his criticism calmly and rationally, explain the reasons for his dissatisfaction to the employee, and make suggestions as to what can be improved and how this can be done. It should also result in the employees performing their tasks on time and in full. Moreover, he wants his employees to point out difficulties in how they process tasks, weak points, and improvement opportunities proactively and at an early stage.

The coach suggests a follow-up call to the project manager to evaluate the coaching at the **level of results** 6 months after the last coaching session, i.e. to assess the effect of John's skill improvements on his employees in a systematic interview. The project manager himself notices that most of the goals were not only achieved, but even exceeded in the course of the project: The team is now motivated to work above and beyond their actual call of duty and is also willing to fill in for each other when the need arises.

At the **level of learning**, coaching success can be assessed during or after the coaching as follows: John's **behavior** in role playing or in other test situations matches the planned behavioral goals or has improved (observation by the coach or John himself). The project manager has gained **knowledge** about the rules and guidelines for feedback that he can use when giving critical feedback to employees. His **confidence** in handling feedback situations has increased during the coaching process. A simple way to measure any progress is the regular assessment of goal achievement on rating scales (e.g. assessing confidence on a scale from 0 to 100 %), which also allows John to see the improvement from one session to the next.

At the **level of behavior on the job**, it turns out that the project manager does not only show the desired behavior in simulated situations, but also when giving feedback to his employees. His self-assessment is confirmed by his superior, who also rates him higher on the abovementioned scales. Accordingly, he succeeded in transferring his lessons to his real working life, providing evidence that the coaching was effective.

At the **level of reactions**, the coach uses a questionnaire to assess how satisfied John is with the coaching and how useful he finds it. At the beginning of the coaching, the answers of the project manager are almost euphoric, driven by high expectations after his first insights. The satisfaction scores decline in the middle of the coaching process, because the role plays confront John with his inner resistance, which is difficult for him to recognize and overcome at first. Finally, as late as half a year after the coaching, the satisfaction and usefulness ratings are back up, because the project manager can trace back the achieved success to the behavior he has learned during the coaching.

Differences in Evaluating the Results of Process, Team, and Individual Coaching

For **process coaching**, the focus of the evaluation is at the level of the reactions (satisfaction or benefit assessments by project participants and stakeholders) as well as the level of results (including assessments of process quality). Yet, the levels of learning and behavior will rarely remain unaffected by process coaching. Reflecting on processes together with the coach allows the project team and possibly other members of the organization to take part in an **intensive learning experience**, which can be used to great effect in other projects. Most organizations, however, miss this opportunity and do not make use of such an evaluation at the levels of learning or behavior.

Conversely, the **effectiveness of individual or team coaching** is rarely measured at the level of results – a procedure that is, at times, justified. An evaluation of coaching success at this level requires the coaching partners to know which specific behavioral or learning goals correlate with which types of results. Such knowledge needs to be available prior to the start of the coaching, and the coach has to take it into account when defining the coaching goals and the criteria for goal achievement. This requires a substantial effort in creating the coaching concept, an effort which in practice is recommended only when a number of project coaching interventions with similar content are carried out. Based on the continuous evaluations of comparable coaching processes, it would then be possible to determine whether the project coaching is effective at the level of results, even if the results in individual cases are likely to be influenced by unexpected and uncontrollable conditions in the project. An evaluation at the level of results provides an indicator of the return on investments in coaching – which gains importance the more an organization invests in project coaching.

- ▶ Ideally, project coaching is evaluated on all four levels: the level of reactions, the level of learning, the level of behavior on the job, and the level of results.

Methods and Instruments for the Measurement of Coaching Success

The **type of coaching**, the defined **goals**, and the **possibilities and the evaluation expertise** of the person reviewing the coaching success determine the choice of methods and instruments for evaluation. In any case, the coach should evaluate the effects of coaching and review the results with the client – ideally throughout the entire process, at the end of the coaching, and finally in a later follow-up after the coaching process to ensure its lasting effects.

Customized Methods for Measuring Coaching Success

In most cases, the method of choice for assessing coaching effects is an evaluation tailored to the specific needs and goals of the client, as this matches the uniqueness of each coaching process. Examples for customized evaluation methods are **Goal**

Attainment Scaling (Spence 2007), which can be used in all types of project coaching, and **ProMES** (Productivity Measurement and Enhancement System; Pritchard et al. 2008), which is used in process coaching to increase productivity.

The advantage of customized evaluation methods is their validity, since success criteria are defined according to the specific goals of the clients and are therefore most relevant to them. Moreover, the specificity of the criteria allows more concrete feedback on improvements, thus contributing to goal achievement in coaching. Therefore, such methods do not only fulfill evaluative functions, but are an important and, in the case of process coaching, even a core part of the intervention.

Customized methods can be adapted quickly and easily, providing **instruments the clients can use themselves** to monitor their progress in goal achievement. The simplest example of such an instrument is a **coaching diary**, in which clients assesses the degree of goal achievement, their satisfaction with the progress, and the importance of the specific goal on a regular basis. (The coach should assist the client when specifying the goals and the criteria for measuring progress towards them.)

Standardized Methods for Measuring Success

Additionally, in project coaching for individuals, the coach can use **standardized psychological tests as pre- and post-measures of changes**, for example in terms of self-efficacy, in various competences, or in indicators of well-being? In team and process coaching, standardized methods are available to assess, for example, the team climate (Anderson and West 1998), the commitment of team members, cooperation, the flow of information, project planning, and other team or process-relevant criteria for evaluating the coaching success.

Relating Measurements of Coaching Success to Other Processes and Procedures

In process coaching, the coaching goals should be defined in a way that corresponds with **the organization's quality management and project management processes**. This is particularly important in large-scale process coaching that covers a broader scope of project management issues. For example, result-based performance criteria could be defined corresponding with balanced scorecards or other controlling systems. It is also advisable to integrate coaching evaluations in project quality assessments, such as project reviews.

Particularly in individual coaching, the **standard tools of human resource management** should be considered when trying to assess the coaching success, provided that they validly represent the coaching goals and that the raters (e.g. human resource managers or the client's supervisor) have participated in defining the goals. Examples include pre-and-post measures in performance appraisals or in 360° feedback (Luthans and Peterson 2003). Since most of these instruments are used over larger time intervals, they are only suitable for a final evaluation of the coaching success, but not for monitoring and optimizing the coaching process as it happens.

6.4 Conclusions

Project coaching increases the likelihood that projects will end successfully. The prerequisites for this are a thorough analysis of the initial situation and the appropriate choice and application of coaching methods. The three types of project coaching – individual, team, and process coaching – offer a variety of methods to improve the behavior, performance, and experience of each project participant and of the team as a whole. Moreover, it helps to optimize the processes within the project organization – especially in complex setups that involve many different project stakeholders.

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Part II

Managing the Project Environment

Klaus Moser, Nathalie Galais, and Anastasia Byler

Abstract

“Are you in or out?” This is what Danny Ocean asks his 11 “experts” in the Hollywood blockbuster Ocean’s Eleven to motivate them to participate in his project; a planned coup to steal 150 million dollars from three Las Vegas casinos. His handpicked team consists of the best experts in their respective fields, including a munitions expert, a pickpocket, and an acrobat. Each expert is highly committed to the success of the project. They work hand in hand in a well-defined team, giving their best in an attempt to get the job done.

This fictitious situation represents the ideal situation for every real-life project manager. Although most projects involve less than 150 million dollars, the recruitment and collaboration of the team members as well as the final success of the project can be a similarly thrilling experience. In an organizational context, a project team may, for instance, be built in order to develop an e-learning system that allows the external workers of a staffing agency to participate in distributed learning. Here, too, various experts are involved in the project: The team may include human resource managers, designers, and IT specialists. However, in contrast to Hollywood’s fiction, the recruiting process will not be driven by the “Are you in or out?” principle, and the expected “happy ending” will not be guaranteed as well.

K. Moser (✉) • N. Galais
University of Erlangen-Nuremberg, Department of Business and Economics,
Nuremberg, Germany
e-mail: Moser@fau.de; Nathalie.Galais@fau.de

A. Byler
University of Alabama in Huntsville, College of Liberal Arts,
Huntsville, AL, USA
e-mail: a_r_Gibson@yahoo.com

7.1 Three Peculiarities of Project Management

7.1.1 Three Special Challenges for Project Managers

The main issues of project management do not differ much from those in other organizational areas: There is the matter of identifying specific job requirements for the project manager and team members, of selecting the right persons for each job, and of training, motivating, and leading the team. What seems to be special about personnel management of project teams is the fact that these teams are temporary in nature, highly oriented toward success, composed of decidedly heterogeneous individuals, typically focused on complex tasks, and tend to have unusual constellations of power.

Specifically, there are three challenges that distinguish project management from many other business situations.

1. Projects have a clear time frame, high pressure to succeed, and are one of a kind.
2. They involve complex tasks for which technically diverse teams are appointed.
3. Such project teams need a project manager who is not a common, everyday supervisor.

The reasons why these situations pose challenges for personnel psychology are explored in more detail below.

Example

Being either a project manager or a project team member means one has to work with others on interconnected tasks. This is true for both projects that are part of everyday work routines as well as for projects that are created as a matter of special importance to solve a particular task. In the first case, usually the responsible manager is experienced in similar project work, while in the latter case, the project manager becomes entitled to manage the project at the inception of the project team. Let us again consider the **example of a temporary staffing agency** that aims to establish an e-learning system for their workers by means of a project team. Such a project team may involve members of the human resources department who define and develop the learning content, perhaps graphic designers from external companies who work on the design, employees belonging to the IT department who are responsible for the technical realization of the final product, and employees from the training department who are responsible for the rollout of the system across the organization. For a project like this, with such a rather exceptional purpose in the organization, an employee from the human resources department may be entrusted with project management even without ever having managed an interdisciplinary team before. This type of project includes different tasks at different stages, with different steps requiring much interdisciplinary collaboration. Given this situation, the development of the content as well as the time schedule can become a real challenge

for both the project manager and the team members. For this reason, it becomes necessary to define subgoals and milestones for the project, to budget the costs, and to develop and stick with an appropriate schedule.

The impression from project management suggests that there should be nothing that a project manager cannot do. Nevertheless, the job of leading a project team does entail certain focuses that are thought to effectively facilitate the overall success of project management; therefore, particular **requirements** should be sought after and encouraged from those selected to lead project management teams. These requirements as well as the challenges they address are discussed in detail below.

7.1.2 Results Orientation

First of all, with any project, there naturally occurs a strong **orientation toward results**. This factor, therefore, needs to be mentioned (IPMA 2006) here. Evaluation and controlling processes are essential components of project management. During project execution, both the continuous assessment of the project's progress as well as the evaluation and reporting of the project's effectiveness are crucial. The most important indicators by which current progress is assessed stems from the so-called magic triangle of project management, which consists of costs, time, and scope (i.e., project specifications). During the assessment of the current state of a project, it is important to check whether step-by-step progress is in line with the given time schedule, whether the project is keeping within budget, and whether important tasks are being completed and subgoals are being achieved. During planning of a project, **milestones are defined**, that is, subgoals which define the way to complete the project are laid out and serve as targets for estimating the project's effectiveness. The core elements in this context consist of the fixed cost of person-days and the accruing costs of material and technology as well as of internal and external services.

- ▶ It is the task of the project manager to continuously compare the current status of the project with the target status, and to take countermeasures if an imbalance between time, costs, and accomplishments occurs.

7.1.3 Project Planning

A second essential element of project management is **project planning**; it includes both the project definition with respect to its objectives and contents, as well as the organization and structuring of the actual tasks. The implementation plan contains the allocation of subtasks to team members. At this point, the breakdown into verifiable subgoals is of vital importance (Packendorff 1995). During the phase of project definition, it is common to formulate both the overall project objectives and

the final product in concrete terms. Effectiveness and performance criteria are important components of the project plan by which the project will be measured, and are defined during planning. In practice, project managers often point out that an explicit distinction should be made between tasks which belong and tasks which do not belong to the project. For this purpose, the professional experience of the project manager is important in order to anticipate any implicit or project-emergent expectations of the project sponsor and to be able to distinguish between these and actual project tasks.

Typically, redefinitions, improvements, and adjustments arise during the course of continuous project evaluation because of unforeseeable problems, new information, or modified project requirements. If considerable **deviations from the project plan** occur, then a correction and update to the project plan or an adaptation of the project objectives are necessary. Although such a correction is time consuming and ties up personnel resources, it is an essential component of professional project management.

7.1.4 Team Effectiveness

A well-functioning project team is an important asset of every project. Therefore, the determination of factors that contribute to **team effectiveness** can be regarded as a central challenge. The following characteristics are relevant (Tannenbaum et al. 1996):

- task characteristics (e.g., organization of the work tasks, task type, complexity),
- structure of the work group (e.g., allocation of tasks, group norms, communication structures),
- attributes of individual team members (e.g., skills, motivation, attitudes, personality, mental models),
- team attributes (e.g., heterogeneity of the members, team atmosphere, cohesion)
- and processes within the team (e.g., communication, conflicts).

With respect to each of these attributes, specific problems may arise that can interfere with the effectiveness of a team.

In Table 7.1, some examples of **problems in teams** are listed. In view of these manifold challenges to project teamwork, human resource management in general and personnel psychology in particular are called upon to help answer questions, such as which attributes should be taken into account when recruiting team members, how the project progress should be monitored, and how cohesion in the team can be ensured despite potential conflicts. Whether project teams organize themselves appropriately can and should be subject to regular evaluation, particularly because, as a general rule, not much time is devoted to team building during projects.

Although the problems listed in Table 7.1 can occur within any team, they are particularly relevant to project teams because the work being carried out in projects

Table 7.1 Examples of potential problems in teams (Tannenbaum et al. 1996, p. 509)

Category of variables	Symptoms	Specific variable at root of problem
Task characteristics	The task is overly complex or poorly understood	Task complexity
	The organization of the task is suboptimal	Task organization
Work structure	Work is assigned suboptimally or by the wrong people	Work assignment
	Team norms regarding work are inconsistent with organizational culture	Team norms
Individual characteristics	Team members or team leaders lack necessary skills or abilities	Task KSA's (Knowledge, Skills, Abilities); general abilities
	Team members do not clearly understand their own or others' roles	Mental models
	Team members have poor motivation or attitudes	Motivation; attitude
Team characteristics	The skills/experience/attitudes mix of team is suboptimal	Member heterogeneity
	Team lacks cohesiveness	Cohesiveness
Team processes	Team handles conflicts poorly	Conflict resolution
	Team makes decisions or solves problems poorly	Decision making; problem solving

involves complex tasks, mostly under considerable time pressure, with team members who are – at least at the start – not well coordinated.

In the Tannenbaum et al. taxonomy, task characteristics are ranked first as a possible source of problems. They include attributes that result from the very nature of the task and that cannot easily be changed, such as communicating requirements of a complex graphic design task in the e-learning example above. It is the project manager's job to successfully **define appropriate subprojects**, and to define the interfaces between the work duties of the different team members, and thus reduce complexity. Note, however, that project managers depend on the **participation of all their team members**. In particular, project managers must be able to initiate and moderate participation processes during planning, operational implementation, and task coordination. Therefore, project managers must be equipped with certain leadership abilities, such as effective interaction with team members and other experts, the ability to structure information in a cohesive and understandable manner, and the ability to determine and plan project steps.

During teamwork, problems can arise based on the **attributes of the individual team members**. For example, the team members could be unqualified because they lack either the necessary skills or work experience necessary for the project, or they may lack task motivation and project commitment. Project managers have to both recognize these problems and, if necessary, take countermeasures to alleviate them.

Organizing and managing teamwork is likewise of utmost importance when attempting to avoid conflicts, misunderstandings, or the loss of information within a project group. This requires **setting up appropriate communication structures**, such as regular meetings that allow team members to exchange opinions, or periodic email communications that help everyone to keep abreast of the latest changes and progress. Furthermore, project managers should operate as diversity managers and ensure that differences between team members do not lead to prejudices and disrespectful behavior. It is important for the success of a project that team members appreciate each other.

Managing resources for the various parts of a project is another important task for project managers and should be carried out in cooperation with the team members who are working on the respective subprojects. It must be ensured, however, that this does not result in either overcautious estimates or overambitious planning. Whereas young and inexperienced staff members frequently underestimate the resources and duration needed for their subprojects, and consequently propose ambitious, scarcely achievable schedules, with older and more experienced staff, it is more often the case that they are overly generous with planning in buffers. Both planning strategies threaten the profitability of a project, and it is therefore the task of the project manager to carry out realistic evaluation and planning (Kendrick 2006).

High task interdependence is a central characteristic of project teams, as each member assumes subtasks of the whole project. Frustrations can arise when project staff cannot continue working on and accomplishing their tasks as planned because their project colleagues have not yet completed their initial parts of the project. Of course, it is because of this that project managers depend on the smooth cooperation of individual team members and therefore have to facilitate such cooperation.

There are various research findings on the impact of task interdependence on the effectiveness of teams. For example, results of an empirical study on high-technology teams revealed that high levels of task interdependence and team identity were positively associated with a cooperative style of conflict management, which in turn was related to higher team performance (Somech et al. 2009). In highly task-interdependent teams, goal commitment of the members is crucial for high team performance (Aubé and Rousseau 2005).

- ▶ If individual project steps threaten to fail, project managers should allow decisions about further steps “to escalate”, which means that they hand over the responsibility of related decisions to key decision makers in the organization. This represents an important safeguard for project managers, as they are otherwise made fundamentally responsible for all deviations from the project plan.

7.1.5 Power Constellations

A third specific challenge for project managers results from the **constellation of power in project teams**. Project managers have only limited authority over project

staff (Kendrick 2006). Although they assume coordination of the project and control functions, they have no formal leadership function. Therefore, their ability to influence others critically depends on how much backing they receive from other decision makers in the organization and how much support they can gain from internal **sponsors for their projects** and their decisions. For example, in order to start a project, the line managers of the designated project team members have to release them from their standard job tasks so they can work on required project tasks.

- ▶ Project managers have to lobby for their projects within the organization and also must make sure that the staff used for the “temporary team” (Packendorff 1995) prioritize project tasks over standard work tasks.

Project teams are composed of specialists from different departments in an organization who are “brought together” for a limited period of time to contribute to the project. On the one hand, team members are committed to the project, while, on the other hand, they are subject to instructions from their line managers in their deploying departments. In fact, project staff members often work in their own organizational unit alongside their project work, and they can even work on additional projects at the same time. This can lead to a competitive situation between project tasks and other tasks of the project team members, which can be a further challenge for the responsible project manager.

If one considers the basic principles of **influence and power** in organizations (i.e., legitimate power, reward and punishment power, expert power, and charismatic power; Raven and French 1958), it becomes clear that project managers can be clearly distinguished from permanent supervisors who are embedded in the established hierarchical arrangement of an organization. Thus, although project managers have a certain degree of legitimate power in their function as persons in charge of a project, this power is not especially effective, as it is not accompanied by higher reward and punishment powers because most project managers lack disciplinary functions. Above all, project managers have **expert status**, particularly in terms of the project task. In addition, they can exercise charismatic power when they inspire and win over the team members for the objectives of the project and spur them on to higher job performances.

Project managers have **to hold the project team together** and commit them to the common project. This is particularly important as members of the project team are not bound by formal functional areas, but are in a relationship to each other solely through the common factor of the project. The temporary character of the team, possible **spatial and social separation of the staff** over different departments, high heterogeneity of the project members with respect to their professional background and expertise, and even the involvement of external staff represent overwhelming challenges for team development.

7.2 Specific Contributions of Personnel Psychology

Considerable differences exist between the buildup of a project team and the recruitment of personnel for a permanent assignment. Besides the question of who is needed on the project team, another is whether there is enough time available on the part of the prospective team members, or if additional staff from outside the organization will need to be integrated. Unlike Danny Ocean, the project manager of an e-learning system project team is often not completely free to decide how to make up the team. In fact, the team composition is, by and large, the result of constraints and the distribution of responsibilities already present within the organization.

7.2.1 Recruitment

Unlike during recruitment and selection for a specific position in the organization, a systematic selection of team members during the buildup of a project team also takes the configuration of team members' attributes (e.g. expertise, personalities, skills, and abilities) into account (West et al. 1998). Decisions about who becomes a team member largely depend on the amount each candidate can be expected to contribute and whether certain individuals have the necessary time available. Therefore, how and by what means future high potential team members should be recruited are questions that are often overlooked. It is even common for organizational members to simply get "deputized" to become project team members.

This results in a kind of "**pressure to cooperate**". In addition, teamwork can be further hindered by the increased **diversity of team members**. By the very nature of project teams, team members differ with respect to sociodemographics (age, gender, and ethnicity), work experience, education, and expertise. It is notable that at least the last mentioned variable is often a prerequisite for successfully tackling the complex issues that confront a project team. Therefore, diversity is typically part of the very nature of project teams.

Note, however, that **team member diversity** can have both negative and positive effects on team performance. The specific features of team members have an effect on processes of social categorization (i.e., on how they perceive each other) as well as on information processing in teams (Van Knippenberg et al. 2004). Depending on the specific processes in the team, both team homogeneity and heterogeneity can have positive and negative **effects on team performance**.

- ▶ Heterogeneity with respect to a variety of knowledge and competencies of team members is a basis for the project team's success, although it can also lead to considerable misunderstandings and conflicts.

Social categorization processes can contribute to – or even strengthen – prejudices, and can lead to the devaluation or overestimation of specific team

members. For example, in interdisciplinary project teams, stereotyping can be directed against a team member due to the member's professional background or position in the organization. A classic **conflict** in organizations is the contrasting perspective of research and development (R&D) engineers and sales representatives. Moreover, stereotyping due to age, gender, or ethnicity can occur, leading to negative effects on team performance in the vast majority of cases.

Therefore, it is important to start conducting team development interventions as early as possible. It might even be advisable to include other project team members during the recruitment process. Project managers should consider themselves to be **diversity managers** and be aware that project team functioning is not a matter of course.

In cases where true recruitment is possible, such as when prospective team members have a choice concerning whether they want to join the project team, the **attractiveness of the project team** becomes an issue. More specifically, a project team's attractiveness depends heavily upon its composition. For example, project teams with a high percentage of low status members are less attractive (Chattopadhyay et al. 2004). Whether individuals' attributes are related to their status or – more generally speaking – are considered in positive or negative terms depends on the individuals' preferences, which are, in turn, the result of an individual's socialization as well as the current social and cultural environment. Members of **minorities** are regularly subject to negative evaluations. For example, Chattopadhyay et al. (2004) found that the percentage of women on project teams is negatively related to members' identification with the project team. The authors explain this result by the fact that women at work are (still) a minority, at least with regard to positions with higher status.

- ▶ With respect to work in project teams, low identification of members with their project teams can be reflected in a low priority of the project team's tasks. This means that every project team member contributes to team attractiveness from the perspective of prospective members.

7.2.2 Personnel Selection

If there does exist a choice between two or more prospective members of a project team, appropriate criteria for selection as well as optimal methods for selection are called for. First of all, it goes without saying that all team members should be intelligent and have extraordinary expertise in their respective area. Job experience, specific competencies, and previous work results are often important fundamentals for personnel selection decisions. Table 7.2 summarizes dimensions of job experiences that can be used as the basis of a **structured interview**. In order to select a prospective manager of the project team, abilities and personality dispositions that have been found to be related to the performance of leaders (e.g., intelligence), in general, can be used. Psychometrically sound intelligence and personality tests are available (see Judge et al. 2002; Judge et al. 2004).

Specific skills also exist that are important for all project members. For example, they must know how to **improvise in all situations**; or rather, they must be prepared to be dynamic and flexible due to continuously changing environmental conditions and project parameters. It happens quite seldom that project tasks are able to be stringently completed in compliance with the initial plan. A well-known mantra by the typical project manager is “Planning is the replacement of chance by misapprehension,” which indicates that it is more the exception than the rule that initial plans are adhered to.

- ▶ A core competency of project leaders is acknowledging and reducing deviations from the project plan, and, at the same time, allowing enough leeway for creative changes and necessary adaptations. In addition, they have to handle failures, misjudgments, and deficient information in a constructive manner.

According to Table 7.2, another core challenge is to be able to influence others without having authority over them. As already noted above, project managers are not the formal supervisors of their project team members. Nevertheless, they are accountable for the success of the project. It is therefore very important for project managers to identify appropriate motivation techniques where necessary, to show a high level of social skills during interactions, and to be able to successfully network in the organization in order to find backing and support during the implementation of the project.

Team composition is an important predictor of the success of a project. Therefore, the question arises as to whether team composition should become an issue during the selection of individual team members. One of the best predictors of team performance is the team members’ intellectual abilities (Bell 2007). In addition, higher levels of agreeableness, openness to experience, conscientiousness, collectivism, and preferences to work in teams make teams more successful (Bell 2007).

However, up to now, there has been no strong evidence that diversity of personalities in teams and team success are positively related, although **professional heterogeneity in project teams** is an advantage, and even more so when task complexity is high. For example, project teams in R&D take advantage of members with heterogeneous backgrounds, because these members can contribute **unshared information**; that is, they can contribute information that the others do not yet know. This increases the level of knowledge for the whole group.

7.2.3 Performance Appraisal

Beyond personnel selection, supporting the preparation and administration of performance appraisals is another core contribution of personnel psychology specialists to project management. Performance can be defined as the contribution of stakeholders (e.g., individuals, teams, departments) to the success of the

Table 7.2 Job experience: characteristics and areas of learning (McCauley and Brutus 1998, p. 10)

Characteristics	Area of learning
New situations with unfamiliar responsibilities	Broader perspective
	Willingness to rely on others
	Business and technical knowledge
	Dealing with ambiguity
Creating change and building relationships	Willingness to take full responsibility for a group or project
	Negotiation skills
	How to achieve cooperation
	Ability to see others' perspectives
	Willingness to involve others in decisions
High responsibility and latitude	Decisiveness
	Decision-making and organizational skills
	Ability to see the "big picture"
Negative experiences	Awareness of limits and shortcomings
	How to cope with stressful situations
	Motivation to take charge of one's own career

organization. The very nature of project management suggests that the performance of project teams should be measured against the project's success. Whereas some authors see no difference between what **performance** means for individuals and **for teams**, other scholars argue that there exist some specific facets of team performance. For example, Cohen and Bailey (1997) propose three aspects of team effectiveness:

1. Performance measured through aspects of the product's quality and quantity (i.e. results measures)
2. Team members' attitudes (e.g. satisfaction with other team members, mutual trust)
3. Team members' behaviors (e.g. absenteeism)

Project evaluation will put aspects of the **product's quality and quantity** at the center. From the perspective of a target-performance comparison, both attitudes and behaviors of project team members are mostly ignored. From a personnel psychology point of view, it is problematic to focus purely on quantifiable results in a project's evaluation. In the following box, the main concerns are specified.

Concerns with Results-Oriented Performance Appraisals

1. Result criteria are often contaminated, lack reliability, or are deficient. They are contaminated as far as results (more so than behaviors) depend on chance, other people's actions, political conditions etc. Their low reliability is notorious. Also, they often give an inappropriate picture of important behaviors (e.g. project citizenship)
2. The use of result criteria makes it difficult to motivate employees. For example, there is a lack of process feedback, acknowledgement of appropriate behaviors, and suggestions of how to modify one's endeavors.
3. The opportunity to learn from failures is, by and large, ignored. However, errors and failures can be an important source for individual learning and development as well as for organizational learning processes.
4. The danger of "escalating commitment" increases. If success is the only thing that matters, then decision makers tend to throw good money after bad, leading to an inability to detect blatantly failing projects (Staw 1997).

For personnel psychologist, the notion that result criteria (things that are countable) are weak measures of true job performance is a pivotal insight. In fact, contamination is also at work when **successful projects are abandoned** or declared to be a failure simply due to market changes as well as political, economical, or strategic reconsiderations in top management, which make specific projects either a low priority issue or no longer worthy of further investment.

We would like to underscore that focusing solely on result criteria regularly leads to a neglect of important elements of long-term success; namely, feedback on the level of competencies and incentives to improve them. In other words, **neglecting long-term oriented training and development opportunities** is not in the best interest of the organization.

Another concern with the use of result-oriented criteria in performance appraisal is the uniqueness of the projects – and many of the respective project requirements – which **constrain the predictive value of these results** for the performance of the project leader in other occasions and/or surroundings (e.g. on other projects or within the deploying department). In fact, though negative results can be far beyond an individual's control, they can impair motivation and even a whole career without any real starting points for improvement.

By contrast, **behaviorally oriented performance appraisals** are more relevant to interventions, such as when feedback provides a basis for the management of a respective behavior. For this purpose, subsequent evaluation criteria should be defined collaboratively among the project leader and team members as early as the beginning of a project. For example, performance rating scales which describe specific behaviors and are a standard for comparison would be very helpful in evaluating the actual behaviors of the project team members.

This clearly shows that it is not a holistic appraisal of a person that is at stake, but rather a straightforward evaluation of behaviors and of the quality of the work results. A content-oriented discussion about past performance makes constructive evaluations possible and enables both individual and organizational learning.

Critics might rejoin that appropriate project management forestalls the negative side of results-oriented performance appraisals. This includes, in particular, a clear definition of tasks, accountabilities, deadlines, interfaces etc. However, this is only possible to a limited extent where **poor motivational effects** of the project team are expected due to the complexity of projects. If project team members are assigned clearly defined tasks while not being held accountable for the project's overall success (Tannenbaum et al. 1996), they might develop a **transactional rather than a relational tie** to the project team. Whereas a transactional relationship can be characterized by a mutual tit-for-tat, framed within clear bargains, relational ties are based on mutual loyalty and high identification of the team members with their project. In fact, a transactional relationship can be the results of very strict demarcation of project parts as well as job requirements and needed expendable effort.

The **relationship of the project team members to the project** can become highly calculative and can be affected by cost-benefit considerations; consequently, identification with the project's mission takes a back seat. Transactional relationships mean that the projects' tasks are completed according to the rules; however, there is almost no dedicated commitment beyond that. In other words, project members lack project citizenship, which means that they are not motivated beyond the goals and tasks that were defined in advance (cf. Hertel et al. 2000).

- ▶ Commitment to the project's goals, identification with the project team, and high project citizenship of all team members are important contributions to a team's overall effectiveness.

The **“that-is-not-my-job” syndrome** can become a real danger for a project's success if it depends on team members' willingness to redefine their tasks, or simply walk the extra mile when needed. That is, however, easier said than done because the person-days of work are often precisely defined and thus pose a real challenge. Project citizenship can mean that time and effort in the project can exceed that which was originally expected, and therefore increase short-term costs for the parent department, another project, or – in the case of external project team members – the deploying organization.

The extremely sophisticated planning of projects is only feasible and appropriate under exceptional circumstances. This, in turn, sets boundaries to results-oriented performance appraisals. Therefore, their replacement, or at least their extension by means of **behaviorally oriented performance appraisals** is an **important project steering tool**. Finally, in cases of detailed planning in particular, preventing poor motivation of project team members can be an important contribution.

7.2.4 Project Controlling

Although the final **evaluation of a completed project** is an important source of organizational learning, it is mostly not taken advantage of in any systematic form. This is especially true when the project goals have been fully achieved to the satisfaction of the stakeholders. In these cases, evaluations of the management process and the project manager's performance are often neglected (Packendorff 1995).

Projects that had failed because they were out of scope, exceeded costs, or off schedule are more often subject to critical appraisals; but again, systematic evaluations that include a deeper analysis of causes and "lessons learned" are still rare. In most cases, the focus is on the project manager alone, who is made accountable for the results of a project (Packendorff 1995). Project managers therefore work under substantial **pressure to succeed**. This may be the reason why project managers are reluctant to communicate difficulties and problems when they occur during the project period (Smith and Keil 2003).

- ▶ It is a core competency of project managers to be able to recognize when the feasibility of a project is at risk and to communicate this directly to the relevant decision-makers within the organization.

Serious problems arise when a project cannot be successfully completed. For IT projects, research has found that only 26 % of projects ever realized their goals within the planned budget and schedule. By contrast, 46 % of all projects exceeded their limits in terms of time and costs, and were not able to meet the objectives of the project. Moreover, 28 % of the projects were deemed to have failed outright or were never completed at all (Smith and Kell 2003).

Likewise, basic research has found that an increased orientation toward success can result in the **escalation** of a project (Kernan and Lord 1989). Project manager and stakeholders jeopardize their reputations and more if they declare that a project has failed, especially when it has already consumed a lot of effort, time, and money, and because of this they may continue to invest in a failing project. Individuals at times refrain from realizing sunk costs. Instead of abandoning an unsuccessful project, they continue to invest even if they cannot meet the goals of the project and, in the end, **waste even more resources**. This is especially true when managers are held particularly accountable with regard to the success of the project (Kernan and Lord 1989). It is a hard thing to accept sunk costs and to admit failure to oneself and to others.

In addition, it is not always easy to decide whether it is worthwhile to hang on and continue with a project, or whether persistence is nothing but a desperate attempt to avoid failure. It is even more difficult to declare that a project has failed in the organizational context, because there are also political aspects that play an important role: With the failure of a project, the reputation not only of the project manager but also of the stakeholders, and maybe the entire enterprise, is at risk.

- ▶ Successful project management can, furthermore, comprise the termination of a project when termination is inevitable. Due to a project manager's high accountability for the project's success, the decision to terminate and give up a project is a real challenge for the project manager's sense of responsibility.

7.2.5 Training, Development, and Career Management

Training and development activities include all the measures that contribute to employee development. Whereas in earlier times, the focus of training and development was on formal trainings (e.g. classroom teaching), it nowadays covers a whole range of interventions and processes that are aimed at enhancing the performance of employees. Training and development is not only concerned with the dissemination of knowledge, but also with behavior modification and **personality development**, including both formal (e.g. trainings) and informal interventions (e.g. learning on the job). In fact, the assignment to a project can be seen as a measure of employee development, because working on joint objectives with as yet unknown colleagues from different departments and diverse disciplines, away from the usual routines, entails a high **potential for learning** for the individual as well as for the organization (Packendorff 1995).

Developmental Opportunities

The participation in a project team offers learning opportunities that arise on the job from the project setting itself, where employees can grow further with every new challenge. By contrast, formal trainings are rather uncommon in the context of project work, because the project team members are all experts in their respective fields. However, the participation in a project team itself provides a good opportunity to maintain, practice, and develop certain skills. Therefore, participation in a project team increases individual team member's employability in terms of intraorganizational and external career opportunities. Employees can expand their knowledge and skills and gain a good reputation in the organization.

It is an important task of project managers to create **learning opportunities** in the project that help to challenge the team members and to develop their skills and abilities. This may sound trivial, but – especially in the context of project management – the development of team members is often neglected, because making optimal use of existing “human resources” takes priority. Indeed, project managers are judged by the success of the project and not by the development of their team members. However, as already mentioned above, the participation in a project team can be considered as an opportunity to learn and to develop oneself.

- ▶ The participation in a project team can be considered a measure of employee development.

The experience gained and the skills acquired are very valuable for the deploying departments of the project team members. Unfortunately, sometimes project managers have more insight into the competencies of the project team members than do line managers. This is unfortunate, given that it is the line managers who ultimately make decisions about the career development of their subordinates. Therefore, it is important for both the employee and the organization that the project manager records and communicates the individual achievements of team members to key organizational decision makers

As project managers are not authorized to make any career decisions for project team members, it is the line manager of the employees who is responsible for their career development, including appraisal interviews, feedback, and career planning. Nevertheless, project managers are an **important source of feedback for the performance appraisal of the team members**. Even though the project manager may communicate important feedback to the right organizational decision makers, it ultimately depends on the line manager to make use of this valuable information.

Feedback Systems

In the previous section, we started to explain why it is important to keep records of project team members' performance. In fact, it is typical for the project driven sector of consultancies to implement **performance appraisal and feedback systems** into the project management process. These systems allow for the recording of skills and professional experiences of the employees involved, and provide the basis for future project member matching and assignment decisions. Furthermore, these systems serve to determine individual training needs. In organizations where project management runs parallel to business processes in the deploying department, the systematic assessment of an individual's performance is more the exception than the rule. In this case, it is up to the project manager and the team members themselves to communicate and document their achievements. Project managers do not have the authority to make decisions about the career of their project team members. The line managers are the ones who make career decisions, provide feedback, and decide about promotion and future placements. Whether and how line managers make use of the valuable insights of the project managers is up to their discretion.

We want to close this section with a final caveat on the importance of feedback. Project managers are an **important feedback source** for all team members. Although positive as well as negative feedback is important for initiating learning processes within the team, counterproductive effects cannot be excluded. In fact, negative feedback on team performance can cause severe relationship conflicts in teams (Peterson and Behfar 2003). However, mutual trust of team members can reduce the undesirable side effects of negative feedback. This is why team building processes that foster a positive team climate are important.

7.3 Footholds for Improvements: Organizational Strategy and Project Management

The archetypal situation for project management is found in R&D teams which have to solve a challenging issue within a limited time span. These team members are specialists with a considerable amount of job experience and heterogeneous technical backgrounds who return to their deploying departments at the end of the project. However, this constitutes only one variation on how project management is motivated and organized. In order to further illustrate this issue, we resort to and expand on a defined typology (Fig. 7.1). According to Sonnenfeld and Peiperl (1988), organizations decide to implement one of **four career development systems**, depending on strategic considerations.

Figure 7.1 describes these four career development systems by means of two dimensions; supply flow (internal vs. external recruitment) and assignment flow (individual vs. group contribution). Examples for a fortress include retail organizations, for the baseball team, there are consulting teams, for the club, there are government agencies, and for an academy, an example would be pharmaceutical organizations.

Depending on their strategies, organizations decide on (or drift towards) a career development system. **Highly innovative organizations** that need creative and independent experts (e.g. consulting firms, advertising agencies, the film industry) will constitute themselves as baseball teams in the labor market. **Well-established firms** with a restricted number of products and/or a strong position in their market that are rather reluctant to fundamentally change policies and practices are primarily in need of reliable and loyal employees (clubs). The so-called academies try to **combine both innovation and commitment**; therefore, this career system rewards those that take (moderate) risks and are loyal at the same time. Finally, the term **strategy** seems to be a bit of a stretch when considering fortresses. In fact, according to Sonnenfeld and Peiperl (1988), they are often firms that had some (other) strategy in the past, but (temporarily) lost control over their environment. Of course, organizations can also combine career development systems.

The sort of project teams in R&D we introduced at the outset can prototypically be found in academies: However, project teams and project management tasks can, of course, also be found – in modified form – in the other three types of organizations. In fact, baseball-team-type organizations often consist of nothing but project teams: In other words, there are no deploying departments. Consider the example of the motion picture industry. A team is assembled to create a movie, and the movie is the project. After the end of the project, the team members will go on to work on other projects. In the consulting industry, similar organizational principles can be found. For example, project teams are assembled in order to work on a customer's assignment, and again, there are no continuous work teams from which members are deployed. Here, rather, the everyday workplace is in the client's organization. Consulting firms often change to virtual organizations; that is, the main office equipment consists of a mobile filing cabinet, a laptop, and diverse other mobile devices (e.g. mobile phones, iPads, etc.). Some firms even insist that

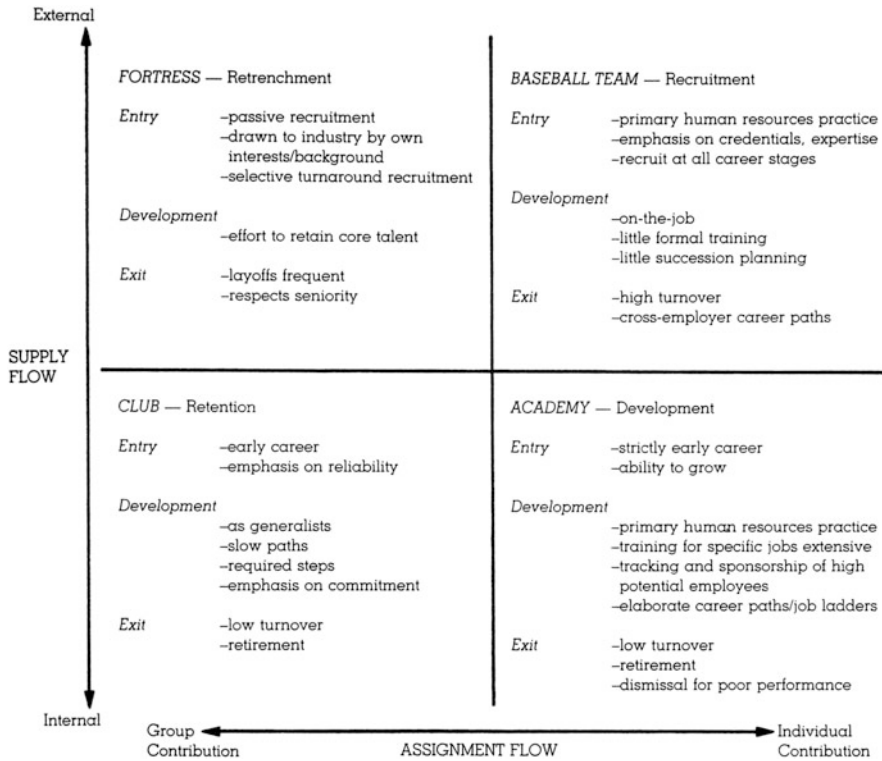


Fig. 7.1 A typology of career development systems (Sonnenfeld and Peiperl 1988)

there be considerably fewer desks and chairs in their office buildings than consultants in order to make it clear to everybody that the workplace of their consultants is wherever the clients are located. In the consulting industry, project members need to be highly flexible with regard to location, working hours, expertise, and social relationships. The assignments vary in duration, the project members can work in more than one client organization at a time, working hours and locations can differ, and there can be alternating colleagues and shifting main tasks of the jobs.

By contrast, club project teams are more the exception than the rule, though the very idea of project teams has its roots in exactly these organizations. Notorious examples are task forces that have been created when very exceptional and critical issues (e.g. organizing the Olympic Games, combating organized crime) had to be solved. Working as a project team member can be considered a disruption of the bureaucratic routine and is clearly the result of some crisis under exceptional circumstances.

Project management also takes place in **fortress organizations**. However, here again, the main issue is **crises management**. The project team can even consist of

only one member – the project manager. Examples are liquidators and interim managers.

7.4 Summary

This chapter has discussed a number of issues in project management from a personnel psychology point of view. Applying personnel psychology to project management does not mean that we have to start at square one. Some methods are, in fact, readily applicable and no different from those which are normally in use. However, there are also some peculiarities of project teams with consequences for personnel psychology issues:

Temporariness Project teams are temporary social entities which have to solve complex problems. However, after completion of the project, the teams usually disband. The limited time span is part of the very nature of a project team. The optimal composition of a project team is a challenge for the selection process as well as for team building and cooperation within the team. Project teams are mostly highly heterogeneous with regard to the different aspects of their team members, so diversity management is crucial for the success of the project team.

Personnel Selection Contributions to project team success include well-known valid predictors, such as intelligence and high-gear technical expertise. In addition, there is evidence that agreeableness and talent for improvisation of the project manager and of the team members are crucial for the success of the project.

Performance Appraisal Project work is results-oriented, which means processes are continuously evaluated and monitored, accompanied by progress and final reports. There is a strong emphasis on results, whereas opportunities to learn are not utilized in order to derive instruction and learning for subsequent projects. Furthermore, evaluation criteria are focused on outcome measures while little attention is paid to important issues, such as the training and development of team members.

Leadership Project managers find themselves in a field of tension between accountability for project results and latitude for making decisions on the one hand, and a lack of formal authority toward the other team members on the other hand. Although project managers decide on the next steps when developing projects, they usually are not the line managers of the team members. Project managers may possess expert power and, in favorable cases, may also display charismatic power when they seek to increase the enthusiasm of their team for the project.

Organizational Strategy and the Importance of Personnel Psychology in Project Management Project teams can be found in different kinds of organizations. Depending on their strategic mission, organizations will differ in their positioning within their relevant markets; therefore, the creation of project teams can have considerably different implications. For example, in some organizations (e.g. clubs), the creation of project teams is an exception reserved for special assignments, and team members that are part of the deploying departments will often continue to work on their usual tasks simultaneous to their work on the project. Project team members therefore also, to some degree, stay active members of their habitual teams. In other organizations (e.g. baseball teams), a substantial number of individuals – and sometimes even the entire organization – consists of project teams that are flexibly tailored to the client's needs.

Personnel psychology issues can be expected to be considerably more relevant and to be a valuable contribution to project effectiveness in the latter case.

Checklist. The Main Concerns for Project Management from a Personnel Psychology Perspective

- Develop assertiveness: Although project managers have no formal authority, they need authority from other sources to successfully motivate team members toward accomplishing the project goals.
- Seek priority and sponsorship: Project managers have to make sure that their projects are appropriately supported and considered as important within the organization and that sufficient material and immaterial resources are provided.
- Require participation of project team members: Definition of tasks and their assignment should include participation of the team members.
- Keep track of the project's destination and systems: Project managers should be both vigilant for results and for appropriate processes.
- Give leeway: Tasks that are too narrowly defined can initiate counterproductive effects, because they predetermine requirements for project members, although projects are only kept alive when all team members are dedicated to the project and engage themselves in project citizenship.
- Find metes and bounds: Project managers should refrain from accepting over-cautious and overambitious estimations of the team members concerning the resources that are needed for the completion of project tasks.
- Have a Plan B and C: It is often necessary to modify the project plans during the project's execution. Therefore, potential breaking points and optional problems should be included from the outset.
- Prepare for failures with safeguards: Project managers should face the facts when problems occur and be willing to report them to both the team and important decision makers in the organization.
- Provide team leadership: Project managers are responsible for good cooperation within the team.

- Manage team diversity: All members of a team should capitalize upon the positive effects of team diversity.
- Do not overestimate successes (failures); the project manager is not the sole determinant: Project success is not in the hands of the project manager alone. Results criteria are contaminated because they will also always depend on uncontrollable circumstances.
- Remember that success is multifaceted: Criteria for success should be defined at the onset of a project. They should not exclusively measure the quantity and quality of project results, but also team members' attitudes and behaviors.
- Give and seek feedback: Project managers should consider themselves to be a source of feedback for the team members and they should also seek feedback from them.
- Provide learning opportunities: Project work can be used for developing employees.
- Keep in mind that the type of project is specific to the organization: Project work is, by and large, part of the nature of the organization and can therefore take different forms; that is to say, project teams may be a part of work routines as well as being built solely to complete one particular task.

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Power and Interpersonal Influence in Successful Project Management

8

Jutta Solga, Alexander Witzki, and Gerhard Blickle

Abstract

Political behavior is an integral part of the everyday routine of any project. There are three main reasons for politicking in this context: (1) Ambiguity in respect to actions, planning, and decisions; (2) the frequently insufficient allocation of vital resources; (3) dependence on different groups of stakeholders with inconsistent interests and objectives. The nature of project work thus requires a high degree of political skill on the part of the project leader. All project managers can learn to behave skillfully, competently, and with a focus on their goals in the project network by improving their political skill, expanding their power base, and carefully analyzing the needs of participating groups.

8.1 The Issue: The Political Dimension of Projects

Until now, the political dimension of project work has rarely been emphasized or examined. One potential reason for this is the negative association of political behavior with politicking. In workaday life, the consequences of the political dimension, i.e. the use of power and influence to secure resources or personal advantages or to expand one's own scope of action, are severely underestimated. Based on empirical results, we propose that the professional handling of the complex political conditions of projects can reduce the stress and strain experienced by individuals and is vital to the projects' success.

There are numerous circumstances that **bring political processes to life in projects** or require political behavior of project participants. The following overview summarizes the three main factors of concern in these conditions:

J. Solga (✉) • A. Witzki • G. Blickle
Institute of Psychology, University of Bonn, Bonn, Germany
e-mail: jutta.solga@gmx.de; witzki@uni-bonn.de; gerhard.blickle@uni-bonn.de

The Reasons for Political Processes in Projects

1. ambiguity in terms of actions, planning, or decisions,
2. a frequently insufficient allocation of vital resources (staff, money, time, power),
3. dependence on different stakeholders with sometimes incompatible interests.

8.1.1 Ambiguity in Terms of Actions, Planning, or Decisions

Frequently, the constraints of a project are not clearly known at its start: The mission and goal might be **vague or mixed up** with other objectives of the project; only fragmentary and inconsistent information might be available; participants might not have clear-cut assignments; or there is only superficial support from management. Due to these factors, the situation is perceived as obscure and ambiguous, and there is a lack of reliable actions, planning, or decisions. Neuberger (2006) describes these ambiguous situations as **zones of organizational uncertainty**. They provide the opportunity to push through individual ideas and interests.

8.1.2 Insufficient Allocation of Vital Resources

Often, project managers are **not provided with sufficient resources** (personnel, money, time, power/formal authority; Pinto 1998). Many projects are established outside of the traditional organizational structure. In such situations, project managers lack the authority to conduct performance appraisals or offer incentives. They do not have access to these important sources of hierarchical power. In addition, the cross-functional and cross-departmental nature of many projects has the unwelcome side effect of project members having to split their time between their line duties and the project. This leads to dependencies and potential conflicts with other departments. Finally, the time pressures that are characteristic for many projects and that cannot be controlled by the project management hold significant potential for conflict.

8.1.3 Dependence on Stakeholders

Internal and external stakeholders have **diverse and frequently contradictory expectations and interests** in a project. In general, stakeholders are affected by the results of a project and, thus, have a justified interest in those results. Some stakeholders are more powerful than others and can have a more direct influence on the management and progress of a project. Pan and Flynn (2003) showed in a study how the activities of a powerful group of stakeholders led to the failure of an entire

project. It is the task of the project manager to carefully analyze, evaluate, and reconcile the interests, demands, and goals of all stakeholders, to satisfy the internal and external expectations, and to avoid conflicts and lengthy negotiations. Put simply, the project manager has to develop an effective **stakeholder policy** (Graham 1996).

Example

Case Study

For a year, Michael Wagner has been the chairman of one of the 16 regional associations of a large national association. To recommend himself for an office on the national executive board, Mr. Wagner agreed a few months ago to assume the management of the project “strategy 2015”, which enjoys lots of support from the national executive board. The project is of the highest priority for the national executive board, while the individual regional associations are rather skeptical about it. In particular, representatives of the associations from the larger southern regions are squarely opposed to it, as they fear painful cuts to their sphere of influence. Less influential regional associations, in turn, approve of this particular aspect of the project. Since the association gets considerable subsidies from the federal budget, Mr Wagner also has to consult the representatives of a governmental department. Although these welcome the project “strategy 2015”, in principle, they focus on considerably different aspects.

Mr. Wagner faces the difficulty of never having dealt in detail with strategic concerns. Moreover, he has never managed a project of a similar scale. As he only recently began working for the association, he does not know the board members of the other regional associations well.

He was given the project management assignment against the explicit wishes of the other regional chairpersons. Mr. Wagner has chosen a consulting firm to assist him in the project that is unknown to the other members of the association. In informal talks, the president of the national executive board has promised a certain budget, but Mr. Wagner still has to learn its actual size. Therefore, he cannot yet sign the contract with the consultants.

The timetable calls for the specification of the essential milestones for the project before the end of the year, when the members of the association are to be informed about planned developments. However, this schedule is constantly being changed by the national executive board or delayed by the regional associations.

The steering committee consists of seven elected officers. In the selection process, the members of regional associations from the northern and eastern regions felt passed over, as they were given only a single mandate each. The reason for this decision was that they have only relatively few, financially weak members. Four of the seven officers cancelled their participation in the first meeting of the steering committee at short notice. The other officers attended the meeting, but seem unprepared for it. Mr. Wagner has asked the national

executive board to contact the officers personally and ensure their cooperation. In addition, Mr. Wagner sent out an email in which he once again justified his procedure in detail and set a deadline for the draft presentations to be prepared by the committee members. Despite all his efforts, the subsequent meetings followed a similar pattern. Therefore, Mr. Wagner cannot comply with the deadline for presenting the first results. Since that point, there has been no substantial progress on the project.

The example shows that **project management and organizational politics are inextricably intertwined** (Pinto 1998). Later on, we will revisit the case study to showcase our theoretical argument.

- ▶ Project managers are confronted with the tasks of having to understand the role of power and influence in projects and deal with their challenges in a politically competent and effective way.

The next sections will consider the important background theory and investigate practical recommendations in the area.

8.2 The Background and Relevance of Organizational Politics from a Psychological Perspective

The discussion about the **political dimension of projects** tends to be emotionally charged, as just about everybody has some personal experience of it. It is essential for any treatment of the political dimensions of projects that the concept of politics is not given a completely negative bias. Instead, it should be understood as something common and ubiquitous. The frequently unobtrusive fine structures of political behavior - well known to organizations' members, such as project managers and their subordinates - are described in the following sections.

8.2.1 Organizational Politics

In organizational psychology, the scientific discussion of **social influence processes in organizations** is covered by the research into organizational politics (Blickle and Solga 2006, see also Pfeffer 2010). "Organizational political action means to instrumentalize others by targeted actions in order to successfully implement one's own ideas and interests in zones of organizational uncertainty" (authors' translation of Neuberger 2006, p. 191). The objects of such influence are as diverse as everyday life in general: The allocation of resources, avoidance of specific tasks, acquisition of support, or intimidation of other people. Successful influence always results in gaining advantages and increasing people's autonomy. Political behavior

is planned and intentional. It is based on the intentional expansion of one's power base and contains a lot of potential for social conflict.

Organizational Politics: Good or Evil?

Most definitions of organizational politics describe political behavior (politicking) as dysfunctional, manipulative, selfish, and laden with conflict. Mintzberg (1983), for example points out that organizational politics tend to be concealed, frequently lead to conflicts, and are not acceptable on principle.

Neuberger (2006) opposes this view and argues for a more expansive concept without trying to sugar-coat the negative aspects of organizational politics. In his opinion, **organizational politics are neither unequivocally positive nor unequivocally negative**. He considers manipulative and acquisitive behavior as one end of the spectrum. The other end is represented by spontaneity, self-reliant behavior, and wholehearted commitment to the organizational goals. Between these two extremes lies the vast range of **everyday political behavior**, such as stretching regulations, accepting white lies, cultivating relationships for a purpose, or flattery.

The Reasons for the Emergence of Organizational Politics

Altogether, the organizational context offers its members numerous opportunities for organizational politicking. This is due to the large number of agents and autonomous action centers as well as complex problems and permanent time pressure (Cohen et al. 1972).

- ▶ The two main sources for the emergence of political behavior in organizations are ambiguity and conflict.

Ambiguous situations are situations that allow for different interpretations and that are ambiguous in terms of actions, planning, and decision-making (Sect. 8.1). Examples of such conditions under which ambiguous situations include the vague promise of resources, limited support by a department, differing interests of stakeholders, or vital information that is intentionally presented in an ambiguous way. Under these circumstances, organizational members will either perceive a threat to their interests, or they are convinced that they are presented with an opportunity that they can exploit to their own advantage. Either way, they will feel that they have to take action in order to archive their own goals.

Another root of political behavior lies in **situations of conflict**. These are situations in which the different participants perceive their positions as antagonistic or irreconcilable and in which at least one of the parties feels detrimentally affected by the actions of the opposing party (e.g. Jehn and Bendersky 2003). Projects are prone to conflicts, as they represent possible changes within organizations (Rattay 2003; Fig. 8.1). Of special relevance here is the relationship between **distributional conflicts** and political behavior. A distributional conflict arises when different parties fight over the distribution of scarce resources. Resources can be both the means required for successful task management or incentives, such as positions,

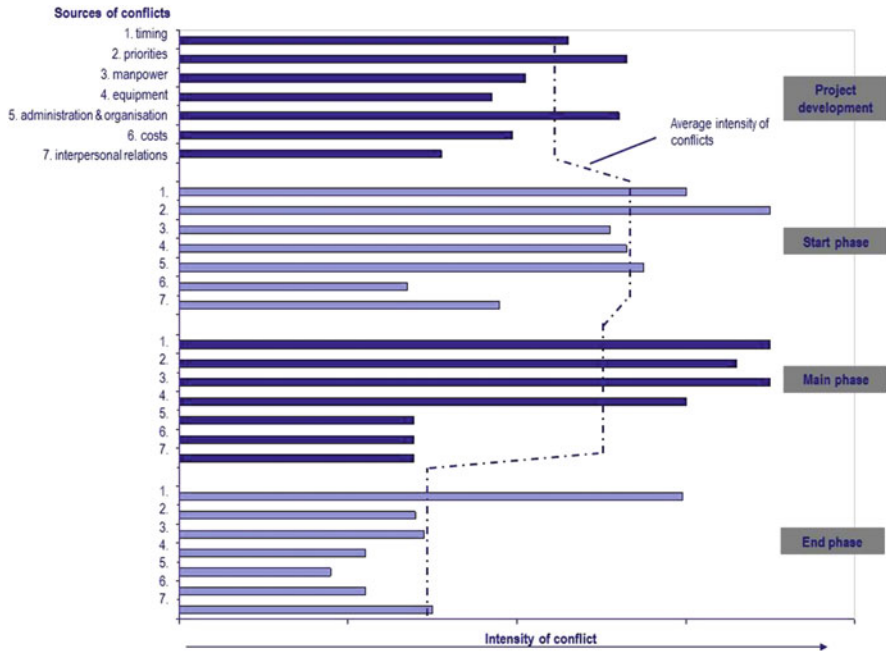


Fig. 8.1 Conflict intensity during project phases (Adapted from Thamhain and Wilemon 1975) (Note: In order to provide a better representation, the conflict sources are only given in the first project phase (Formation). The mapping of the following phases corresponds with the first phase)

attractive tasks etc. (Sect. 8.1). It is more likely for a person to start politicking if they perceive themselves as having lost a distributional conflict due to arbitrary decisions. The likelihood of political behavior is reduced by the perceived justice of the decision, its openness, and the opportunity to participate in it.

- ▶ The existence of (distributional) conflicts and the resulting politicking can be reduced by an open and transparent procedure as well as by the involvement of other stakeholders in important decisions.

Example

Application to the Case Study

The **ambiguous budget commitment** by the national executive board and the frequent changes to the schedule made it difficult for Mr. Wagner to plan and make binding decisions. The interests of the different groups of stakeholders (regional associations, national executive board, and members of the government department) pursued different directions and came into **conflict with each other**.

8.2.2 Power and Influence

Power is the *opportunity (potential)* to have an intended effect on another person based on the use of appropriate resources on perceptions, beliefs, and behaviors (Blickle and Solga 2006). An essential part of this definition is that power is considered a dynamic feature of a social relationship.

Influence can be conceived as the specific implementation of power, i.e. *the actual use of power resources* to achieve objectives. The objects of such influence are not only actions, but also the beliefs, expectations, attitudes, values, sentiments, emotions, and sensitivities of other persons.

Bases of Power

The Power Base Model

The resources which are used to influence the other party in the interaction are known as **bases of power**. The power taxonomy proposed by French and Raven (1959) is still the best known and most frequently cited summary of various forms of power.

Classification of Bases of Power (Supplement to French and Raven 1959)

1. **Rewarding Power:** Ability of the power wielder to give rewards. In addition to material, formal, or financial rewards (impersonal reward power), attention, praise, and regard can be used as rewards (personal reward power).
2. **Coercive Power:** Ability of the power wielder to punish the partner. In addition to a revocation or denial of tangible resources, such as money, rank (impersonal punishment power), intangible resources like attention and praise can be similarly revoked or denied (personal punishment power).
3. **Legitimate Power:** Legitimate or positional power is based on a lawful claim to influence. Typically, this claim is based on the formal position within a system, e.g. the hierarchical position within an organization (formal positional power). Legitimate power is identical with authority. It is dependent on acceptance of generally recognized norms, structures, and values.
4. **Expert Power:** Expert power is based on knowledge and skills of the power wielder that are valuable in the situation. Contrary to the other bases of power it is highly specific and limited to the specific area in which the expert is qualified.
5. **Personal Power:** Ability of the power wielder to attract others and build loyalty and strong interpersonal relationships e.g. due to mutual sympathy

(continued)

or respect. If it is based on special attractiveness or charisma, it is referred to as charismatic power.

6. **Information Power:** The power wielder possesses relevant information or special argumentation skills.

Frequently, project managers only have **limited bases of power**. Only in rare cases do they possess formal authority over project members or yield formal positional power. Their rewarding or coercive powers are limited to praise and criticism. In particular in large projects, the base of power may change depending on the situation, as the project leader has to cover a number of different roles.

The lack of formal power can be **compensated for with reputation**. **Reputation** is the overall impression that results from the individual perceptions of the partners interacting in a network (Zinko et al. 2007). A person with a high reputation is regarded as upright (honest and conscientious), willing/benevolent (kind and helpful), or effective. Power by reputation can grow, based on the special trust that is given to a highly respected person: The higher the reputation, the more likely the decisions, actions, and instructions of the person are accepted.

- ▶ Expert power, personal power, and reputation are very important for project managers. It is necessary to strengthen these and to develop an awareness for the power conditions that are permanently changing in projects.

Example

Application to the Case Study

Mr. Wagner had virtually no **bases of power** that would have enabled him to influence the perceptions, beliefs, or behaviors of his project members. He neither possessed subject matter expertise (expert power) nor was he able to build on emotional solidarity (personal power) among the other regional chairpersons. He was formally assigned as project manager (legitimate power). However, this did not really seem to impress the others.

The Strategic Contingencies Theory of Intraorganizational Power

The underlying idea of the bases of power model is that the control over important resources gives power to the person possessing these resources. The *strategic contingencies theory of intraorganizational power* (Hickson et al. 1983; see also Pfeffer 2010) transfers this idea to the **power relation between different departments** or working groups within an organization. Thus, the construct is expanded from the individual to the organizational level. The objective remains

the same, i.e. to influence organizational goals, the allocation of resources, or other processes.

The model assumes that the power of a department/organization (**department power**) depends on:

1. its ability to competently reduce the ambiguity of actions, planning, and decisions for other departments (**coping with ambiguity**),
2. the extent to which these abilities are not replaceable (**non-substitutability**),
3. the importance of its actions to other departments and the number of dependencies (**centrality**).

In order to be powerful, a department must control critical resources (coping with ambiguity, non-substitutability, centrality). The more it succeeds in this, the more powerful it will be in the organization.

- ▶ This means that project teams must have information and expert power to be able to successfully assert influence on other subunits.

Example

Application to the Case Study

The **regional associations** from the larger southern regions appears to be especially **influential**. The essential reason is clearly their wealth and numerous members. Thus, they are of extreme importance for the national association (non-substitutability). Moreover, they increase their centrality by participating in the steering committee.

Interpersonal Influencing Tactics

Influence has been defined above as the exertion of power and as a manifestation of organizational politics. Every day, people influence others in highly complex interaction processes in order to form, stabilize, or change opinions, behavior, perceptions, or emotions. Table 8.1 gives an **overview of the tactics that have been analyzed most frequently**.

The bases of power named above are reflected in these **interpersonal influencing tactics**: For example, assertiveness, blocking, or sanctions as influencing tactics are primarily based on the announcement or excretion of coercive power and the principle of reciprocity. Ingratiation, by contrast, can strengthen personal power. Rationality confirms expert power and argumentative strength, which is one part of information power. As a social norm, an accepted exchange implies a strong liability for reciprocal action. Coalitions gain their assertiveness out of two sources (Blickle and Solga 2006):

Table 8.1 Important influence tactics

Tactics	Examples
Assertiveness	Giving instructions; making firm demands; setting deadlines
Blocking	Offering resistance in the form of retreating, working to the book, ending the usual cooperation, or ignoring the other person
Sanctions	Threatening punishments, e.g. withholding raises
Exchange	Offering to do something to get something else (<i>one hand washes the other</i>)
Ingratiation	Being amiable; making compliments; agreeing with the views of the person to be influenced
Rationality	Making logical arguments; using factual arguments to convince others; supporting opinions with proven facts; giving additional information
Coalitions	Joining forces with others; getting the support of colleagues
Upward Appeal	Inducing superiors to put an adversary into his place
Inspirational Appeal	Appealing to emotions, ideals, and values in order to arouse enthusiasm
Consultation	Asking the target person for advice, suggestions, or her/his opinion
Legitimation	Referring to one's own authority or position within the organization; insisting on formal rules
Personal Appeal	Appealing to feelings of friendship and loyalty
Self-promotion	Representing oneself as competent, hard-working, and successful

- the pooling of power resources and
- the emergence of new power resources.

Higgins et al. (2003) have analyzed the **effectiveness of important interpersonal influencing tactics** on work-related outcomes. They were able to show the positive effects of ingratiation, rationality, and (moderate) self-promotion. By contrast, assertiveness is much less promising. A particularly effective option seems to be a **combination of ingratiation and rationality**. Overall, there is a significant relationship between the use of influencing tactics and relevant work-related outcomes, such as performance evaluations, salary increases, or promotions.

Example

Application to the Case Study

After the first project meeting, Mr. Wagner contacted the national executive board (upward appeal) and asked for help. At the same time, he tried to explain his procedure (rationality) and exert pressure by setting deadlines (assertiveness).

Political Skill

Project management has a gateway function between the initiating level and the executive level. This role requires a high degree of understanding and sensitivity for the situation. For project management to achieve its objectives (the allocation of required resources, appreciation of success, good standing within the organization

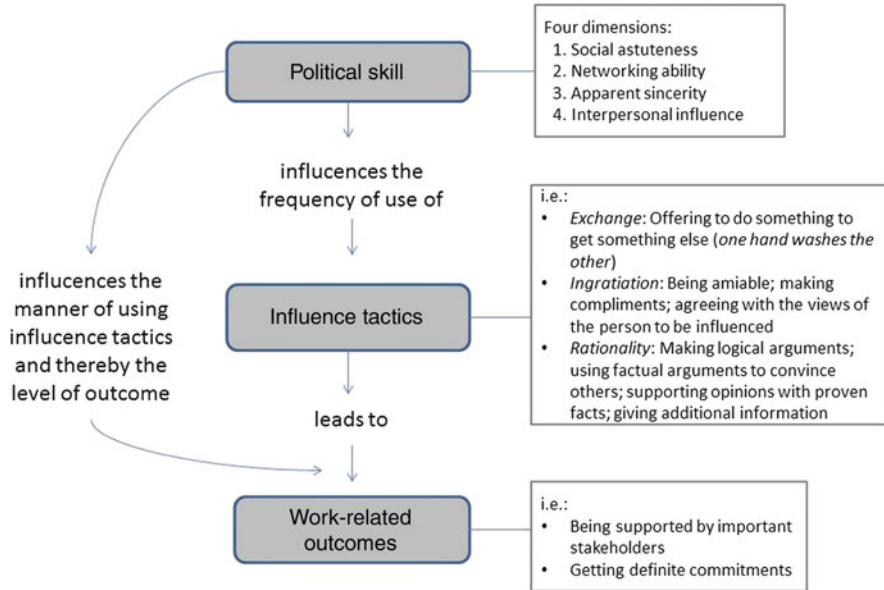


Fig. 8.2 The effect of political skill on the relationship between influencing tactics and success

etc.), it is necessary to understand the needs of the stakeholders, to possess a good network within the company, and to influence others for the good of the objectives.

Research has only recently started to focus on the conditions under which efforts to influence people are successful. Current literature (e.g. Ferris et al. 2007; Ewen et al. 2014) assumes that the success of an **influencing effort** is dependent on its adaptation to the given situation as well as on the adequate use of influencing knowledge acquired in different situations. The necessary competence is referred to as **political skill** (e.g. Ferris et al. 2007; Fig. 8.2).

Political skill describes the ability and readiness

- to understand others and
- to control one’s own behavior in social networks and to adapt one’s behavior to different and changing situational demands in a way,
- that it appears sincere and trustworthy, and
- that influences the behavior of others in favor of one’s own objectives.

Political skill consists of **four dimensions**.

1. **Social astuteness**: Socially astute individuals are attentive, sensitive, and precise observers of others. This skill enables them to accurately interpret the

behavior of people they interact with. At the same time, they can effortlessly adapt their own behavior to the demands of the situation.

2. **Networking ability:** Networking refers to the activity of building, cultivating, and using social relations in work settings. Due to their special ability, politically skilled individuals easily build dependable relationships. In a relatively short time, they become well-positioned within the organization and, thus, able to further extend their organizational power. They support others on their own accord and pursue the principle of reciprocity (one hand washes the other).
3. **Apparent sincerity:** Attempts to influence others can only be successful if they seem to possess no ulterior motives. This explains the success of apparent sincerity: It has the effect that attempts to influence others are not interpreted as manipulation. The actions are assumed to be typical behavior of the individual, rather than political behavior intended to further personal interests.
4. **Interpersonal influence:** Individuals with a high degree of interpersonal influence are able to flexibly select their influencing tactics and adapt them to the situation. Because of this flexibility, they are able to control their environment without appearing to be manipulative or unfair.

All four dimensions are important facets of **work-related social competence** (Ferris et al. 2007). A manager with considerable political skill has a **positive influence on team performance and work climate**. Moreover, a high degree of political skill can reduce negative effects of workplace stressors like stress or dissatisfaction and facilitate dealing with emotions that might develop in the context of political behavior within organizations, such as resentment, anger, or happiness (Ferris et al. 2012).

- ▶ Political skill substantially influences professional success and reduces the negative effects of work-related stressors.

Politically skilled behavior is in part a matter of **disposition**. However, many aspects can be learned. Ferris and colleagues recommend certain **training techniques** to develop political skill: Role plays and, even better, model learning and - for higher-ranking managers - coaching (Chap. 6, Wastian, Dost, & Braumandl). Ferris et al. (2008) found that mentoring can also improve political skills.

Example

Application to the Case Study

After the first meeting of the steering committee Mr. Wagner tried to influence the other members. However, this attempt was not successful. There were a number of potential reasons for this. He did not recognize the needs of individual members and did not act on them (social astuteness). He had a weak position within the association and a poor network (networking ability). In addition, he had chosen influencing tactics that did not fit the situation in question

(interpersonal influence). The harsh and assertive style of his email reinforced the opinion of the other members that he took on the project management simply to enhance his career prospects (lack of apparent sincerity).

8.3 Opportunities for Improvement

In the discussion of the political dimension of project management, it is evident that not everybody likes to become consciously politically active. However, as explained above, project management and organizational politics are inextricably intertwined (Sect. 8.1). Therefore, it is always necessary to take the political dimension of any project into consideration.

- ▶ The nature of project work requires a high degree of political skill on the part of project managers. Their objectives can only be achieved by careful and sensible political behavior.

Only very few people are natural politicians. Thus, the question arises as to whether and how political behavior can be learned. How can one start to become a skillful, competent, and effective project manager? **Three development targets** can be extracted from the detailed considerations presented above:

1. detailed **analysis** of the needs and objectives of **stakeholders**
2. development of available **power resources**
3. improvement of **political skills**

The three objectives are briefly illustrated in the following sections.

8.3.1 Analyzing the Needs and Objectives of Stakeholders

The different internal and external groups of stakeholders in general tend to approach project managers with very different and frequently competing interests. It is necessary to reconcile the various needs in formal and informal discussions. The project manager should be quick to analyze the interests of all members of the project network actively and carefully as well as evaluate the political implications to avoid conflicts. In the process, the project manager must (1) assess who are the most important groups of stakeholders and (2) find out how best to balance their different needs. Pinto (1998) introduces the term **political stakeholder management** for this analysis of (hidden) objectives and concerns.

The following questions are essential for political stakeholder management:

Questions that Have to Be Resolved with Respect to Political Stakeholder Management

1. Which stakeholder groups are relevant to the project?
2. What are the relations between stakeholder groups?
3. Which objectives do the stakeholder groups pursue?
4. Which objectives are mutually exclusive?
5. Do the objectives match the strategy of the organization?
6. Are there any hidden agendas that have to be taken into account?
7. Does the project change the power balance between different groups? If so, in whose favor?
8. How can the project team secure the support of different stakeholder groups? Which connections can be used for this purpose?

Power-mapping¹ is a **valuable method** to get a systematic sense for the complex **relationship patterns** between persons and groups. The idea behind this method is the assumption that relationship networks are critical resources and that the knowledge of the underlying networks allows for better solutions. Power-mapping helps decide whom to influence, who can help with the project goals, who can influence whom within a network, and where to start the “dominoes of influence”.

- ▶ Power mapping helps accomplish goals by using relations and networks effectively.

8.3.2 Development of Available Power Resources

Control over important resources gives power to the owner of these resources. To the traditional bases of power (Sect. 8.2.2), the strategic contingencies theory of intraorganizational power adds the control over critical resources. How can resources of the project manager and project team be developed and strengthened? Blickle and Solga (2006) make the following propositions:

- **Legitimate power** and **information power** can be built by using opportunities to participate in important decisions (e.g. work in committees), increasing one’s general visibility (e.g. voluntarily taking over additional tasks), being present in the organization, or controlling important information channels.
- **Expert power** and **relation power** can be built by enhancing one’s profile as an expert in specific areas, acquiring a strong technical reputation, or trying to understand the informal structure of an organization.

¹ A detailed description of this method can be found at:
http://www.thechangeagency.org/_dbase_upl/power_mapping.pdf [18.11.2013]

- **Department power** can be increased by controlling critical resources:
 - A department can achieve great importance by mastering functions that are difficult to manage for other departments. The best example is an IT department, as it can solve problems for other departments on the strength of its expert knowledge.
 - A department can minimize the likelihood of being replaced by specializing, occupying a distinct niche, or having a monopoly on a specific resource (such as information).
 - A department can increase its centrality by participating in important committees, while simultaneously reducing the external influence on decisions within the department.

8.3.3 Improvement of Political Skills

Many aspects of political skill can be trained and developed (Sect. 8.2.1). The training can be aimed at the objectives presented in the following checklist:

Objectives of Political Skills Training

- reflection of strengths and weaknesses in social settings
- feedback on one's own behavior in interaction with other persons
- deliberate use of active listening techniques
- learning and effective use of influence tactics
- self-marketing
- sensible use of social networks
- inspiring others (charisma)
- authentic behavior in everyday worklife

Trainings can be structured along the four dimensions of political skill. Feedback techniques, role plays, and coaching are useful learning tools for this purpose.

For **social astuteness**, it is of particular importance to understand the motives and underlying rationale of other persons and develop a reaction appropriate to the specific situation based on these perceptions. Therefore, any training should be focused on **raising awareness for this perceptual skill**. The active listening technique developed in the person-centered counselling approach (Rogers 1951) is a good starting technique, as it helps recognize and explore personal motives and resolve conflicts.

The contents of any seminar on **network ability** should be centered around findings regarding the concept of **social exchange** (Blickle and Solga 2006)

The concepts of social exchange are concerned with

1. The rules and norms of **social exchange**: The most important rule is the principle of reciprocity. The simplest form of this rule is: tit for tat.
2. **Exchangeable resources**: The objects of the exchange can be purely material resources (goods, money, services) or immaterial assets (attention, prestige, information); and
3. **Relations based on exchanges**: If an exchange process is perceived as stable and honest, then a trusting relation develops over time, which in turn strengthens mutual commitment.

The objective of training **interpersonal influence** is to learn and practice **influencing tactics**. A good reference point for the development of such training formats can be found in the results of a study by Higgins et al. (2003, see above). **Ingratiation** is a particularly promising strategy. It is aimed at increasing the likability of a person and results in a positive emotional reaction. Ingratiation can use the following strategies:

- to express that one is of the same opinion or shares the same values (**opinion conformity**)
- to do the target person favors, to support, or assist the target (**favors**)
- to explicitly present characteristics of one's own that the target finds attractive (**self-enhancement**)
- to make compliments, praise, or commend someone (**other-enhancement**)

Self-promotion can also be an effective tool for gaining influence. One technique is to present weaknesses in less relevant areas and thereby increase the credibility of self-promotion in more important areas. Another self-promotion strategy is to demonstrate modesty in respect to things in which the target is familiar with one's abilities or achievements. Overdoing such techniques should be avoided to avoid the danger of being perceived as arrogant. This could result in the so-called self-promoter's paradox: Too much self-promotion is perceived as an indication of low competence.

Apparent sincerity is the influencing tactic that is hardest to train, as it consists of authentic and upright behavior. An important point that has to be remembered is consistency of behavior when facing different situations or communication partners. It is also essential to not show off the successes of politicking to avoid the growth of distrust.

Example

Application to the Case Study

What should Mr. Wagner do now? He could clarify the objectives and needs of the different groups of stakeholders in a detailed analysis. What is the goal that

the national executive board wants to achieve with the project? What are the objectives of the regional associations? What are their apprehensions? Furthermore, he could try to improve his personal basis of power: Good project marketing would not only be favorable to the project itself; it would also increase his personal visibility within the organization and strengthen his position in the medium term. By the acquisition of specialized knowledge, he should make a name for himself as an expert and be available as a contact person. He could strengthen his reputation and gain the trust of others by steadily improving his network and being a co-operative partner.

8.4 Conclusion

To date, the political dimension of project management has been unjustly neglected. The success or failure of a project is in large parts determined by the competent handling of prevailing insecurities, inadequate assurance of necessary resources, and the different requirements of stakeholders.

Project managers can avoid starting **unchecked** political processes by means of the careful administration of their position in leadership. Simultaneously, the interests of stakeholders have to be thoroughly analyzed, power resources strengthened, and their own political skills have to be improved.

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Part III

Managing People

Joanne Lyubovnikova and Michael A. West

Abstract

Teams are fast becoming the normal organizing principle across the world. A project team is a particular type of work group that is typically short-lived, assigned a specific task which tends to be ill-defined and non-routine, and comprised of team members with a diverse array of skills, expertise, and experience. Although researchers have developed numerous concepts for developing effective teamwork, project teams require special attention in response to these unique characteristics. So how can organizations enable the effectiveness of their project management teams? In this chapter, we approach this problem by drawing upon principles of positive psychology to understand how to best develop and facilitate effective project management teams, based on eight key team processes.

9.1 Background

Teams matter, because they provide a medium within which we can express our needs for attachment, needs which reflects our innate and powerful inclination to establish and sustain social relationships – in short, our **need to belong** (Baumeister and Leary 1995). **Positive psychology** recognizes the need to belong and uses it to enrich theories of teamwork. However, this is not a new discovery. Scientific interest in team and group effectiveness can be traced back to the Hawthorne

J. Lyubovnikova (✉)

Aston Business School, Aston University, Birmingham, United Kingdom

e-mail: j.lyubovnikova@aston.ac.uk

M.A. West

Lancaster University Management School and The King's Fund, Lancaster and London, United Kingdom

e-mail: m.a.west@lancaster.ac.uk

studies of the early twentieth century, when it was first recognized that the social and emotional processes in work teams can enhance their individual members' output. Socio-technical systems theory gave further credence to the importance of aligning both the technical and social systems of teams and organizations in order for them to function effectively (Emery 1959). However, the ideas about project team management as implemented in many organizations today are still highly dependent on traditional work design theories and fail to incorporate ideas about belonging or positive emotions and relations as key motivational factors in project team dynamics.

Positive psychology seeks to offer a comprehensive understanding of the multiple dimensions of people functioning positively. We propose that by incorporating ideas from positive psychology, we can offer means for leading and participating in project management teams that nurture the team members' personal development and enable outstanding productivity and innovation in project teams. In this chapter, we propose that blending the principles of positive psychology into traditional models of project team management reveals ways of achieving exceptional performance on the part of the **project management team**. It enables us to outline how project team members can fulfill their social and emotional needs at the same time as enabling the project team to meet its objectives. This is not meant to reiterate the contents of previous chapters, but to show the unique contributions that the insights of positive psychology can bring to our understanding of project team management.

9.2 Developing Effective Project Management Teams

Traditional literature on project teams paints a pessimistic picture of team processes, tending to focus on the 'disabilities' of teamwork, such as groupthink, conflict, faulty decision making, and social loafing. To contrast with this, we will offer a positive picture of project team management by exploring team processes with a view to potency, optimism, trust, reflexivity, positive, inspirational leadership, and social support as examples of how project teams can achieve outstanding success. For this purpose, we will explore eight team processes that are important for successful project management teams in turn.

9.2.1 An Inspiring Team Task

When a project team has a compelling vision which captures the team's overall sense of purpose, its members are more likely to be motivated, to learn, and to engage effectively with both the team and the project itself. The project a team undertakes determines the team's composition, defines its structure and how it is to function. It is therefore crucial that the task itself motivates project team members to participate. Whatever the specific objectives of a project, it is crucial that team members find the project challenging, offering opportunities for growth and give them a sense of their self-efficacy. This is helped if there is a clear vision of the

project team's contribution to their organization, their customers/service clients, and/or to the wider society.

The project should be such that it encourages intrinsic motivation by way of the project team members' perceptions of a meaningful purpose. When team members engage in a challenging, yet manageable project, they are more likely to experience a psychological state referred to as '**flow**' – a subjective experience of strong engagement, whereby team members are both absorbed in and concentrated on the task at hand (Keyes and Haidt 2003). The likelihood of such flow or engagement is increased when project team objectives are clear, challenging, and realistically achievable, and when there is substantial and immediate feedback on performance. When the team has a strong collective motivation to complete the task, it is also more likely to demonstrate a high level of involvement, persistence, creativity, and high performance (Carr 2004).

An **inspiring team task** is challenging, offers a holistic purpose, rather than insignificant partial elements of a wider task, is varied in its content, increases the likelihood that a team will develop new skills, provides swift and useful feedback, gives the team autonomy to get on with the task and make decisions, and will lead team members to experience collective **positive emotions**. In turn, these promote more cooperation, innovation, and effective performance. Positive emotion is a source of strength, and encourages flexible, open-minded cognitive processing, enabling team members to recognize what needs to be done and encouraging them to make the most of the environment they work in.

9.2.2 Positive Team Relationships

Relationships are vital for human well-being and project team effectiveness. Good relationships enable project teams to thrive and perform effectively. Poor relationships destroy the team's ability to deliver, whereas supportive, fulfilling relationships have a beneficial effect on health and psychological **well-being** (Heaphy and Dutton 2008). Conversely, negative relationships, such as hostility, can act as slow or rapid-acting poisons that are detrimental to our physical functioning and even the immune system. Therefore, given that project team members work closely together to complete their projects, it is crucial that they develop and sustain positive professional relationships in order to promote well-being within the team. Indeed, individuals may not feel great interpersonal liking for other project team members, but as professionals, they should behave positively, supportively, and collaboratively towards their peers. Such a professional outlook will promote success. Allowing dislikes and irritations to interfere with the successful completion of a project should be considered professionally unacceptable.

We are social creatures whose health and well-being requires the development of strong and harmonious bonds with others. Consequently, we seek out work activities which involve meaningful interpersonal interactions with others, especially when working in project teams. As discussed earlier in this chapter, we are also driven to form strong bonds with others, as we seek to satisfy our needs for

belonging and acceptance. Baumeister and Leary's research (1995) shows that, in order to satisfy our need to belong, our project team relationships should exhibit four characteristics:

First, there should be frequent interaction with team members. Tasks usually require team members to work hand in hand in order to achieve their objectives. Frequent interaction is therefore highly desirable, whether this be in the form of close physical proximity, or regular virtual contact via telecommunication. Yet too often, as other chapters in this volume indicate, project team members fail to communicate or meet frequently enough. It is rare for project teams to err on the side of too many meetings or too much communication.

Second, relationships are strengthened to the extent that they are relatively stable and long lasting, meaning that teams which remain intact over longer periods of time benefit from the resulting familiarity and security. Moreover, teams with stable membership perform better as their prolonged time together gives team members the opportunity to develop effective ways of working together and to develop shared, tacit knowledge as a team, saving time and resources in the process. Such teams become 'self-correcting performance units', because project team members anticipate and respond to each other's actions, and coordinate performance to achieve a seamless and collaborative whole (Hackman 2002). Having history together gives team members an insight into their peers' strengths and enables them to compensate for others' weaknesses. Achieving temporal stability for project teams is challenging, but we should be aware that their work is made more difficult and less efficient when membership is constantly changing or teams are unnecessarily broken up and reformed with new members, although it would be possible to maintain the same team composition across different projects.

Third, chronic conflict destroys relationships. Despite the fact that conflict is an unavoidable and sometimes even beneficial feature of teamwork, **interpersonal conflict** reduces team members' sense of satisfaction and commitment to the team (Jehn 1995). Starting each working day by anticipating aversive conflict with other team members does not bring out the best in us in terms of creative thinking or the motivation to cooperate. However, moderate professional **conflict** (as contrasted with interpersonal conflicts) **on complex project assignments**, managed appropriately, can be helpful in improving decisions and promoting a critical sense for the work that is done (Jehn 1995).

Finally, good project team relationships are mutually supportive, in that they are affectively pleasant, humorous, and reciprocal – we both give and receive in our relationships with other team members.

9.2.3 Team Attachment

The concept of **team attachment** relates to the human tendency to seek security within the diverse groups we are members of. Our inclination to form attachments to teams and the nature of this attachment can influence the degree to which we identify with the team and, in turn, the extent to which we trust and cooperate with

other project team members (Korsgaard et al. 2003). Healthy team attachments are characterized by friendly, accepting, and supportive interpersonal interactions between project team members and by mutual respect, an awareness of others' needs and concerns, and genuine caring about each other's **safety** and well-being. Particularly in dangerous work environments, project team members look out for one another and back each other up when the team has developed a strong ethos and secure attachments. Individuals who are securely attached to their team feel safe and sound in their organizational environment, knowing that their fellow team members are supporting and protecting them. This secure basis encourages team members to work interdependently with their team colleagues, innovate, take sensible risks, maintain sufficiently frequent contact with other team members and share necessary and relevant information with the rest of the team.

However, teamwork does not always create a sense of security. Team members can experience isolation and alienation if there are low levels of **interdependence** in the work or no really close ties between team members. This may well occur in short-lived project teams or amongst employees who work in many teams simultaneously. Similar difficulties can be experienced by online or predominantly virtual teams, whose methods of **communication**, such as conference telephone calls and emails, are relatively limited and militate against the development of a strong sense of belonging in the team.

One way of avoiding such problems is by encouraging more intensive contacts, particularly at the outset of the project. Encouraging real teamwork, in which team members work closely with each other, put an effort into engaging with one another, and concentrate on achieving their shared goals through cooperation, innovation, and high levels of communication rapidly builds a strong sense of identification in the team, cooperative goals, and loyalty in newly created project teams (see for example the seminal field research on small groups by Sheriff et al. 1988). Early wins can also quickly build attachment, since cohesion is often a consequence of success. Working intensively together, particularly at the early stages of projects, and being assigned a shared inspiring project generate a joint sense of belonging among team members, thereby producing strong team attachments. Such attachments in turn predict the team's innovative capabilities, effectiveness, and success (West 2012).

Attachment can be characterized by avoidance and anxiety. Some project team members may demonstrate **avoidant attachment**, as revealed in their being distant from and independent of the project team. Such individuals typically display lower levels of commitment and group identification, and are more concerned with fulfilling their own self-interests over those of the team (Korsgaard et al. 2003). In order to counteract such avoidance, the team should develop a strong group identity through getting team members to openly appreciate each other's efforts and value closeness and interdependence, particularly in relation to the avoidant member (in practice, project team members often do the opposite, shunning the avoidant member). Over time, such strategies typically reshape the avoidant members' perceptions, encouraging engaged and supportive approaches to project team's work.

A third attachment style is characterized by anxiety, as team members feel undervalued or inadequate within the project team. They experience and express more negative mindsets, such as complaining, being pessimistic, worrying, or criticizing other team members (usually privately). They are also unhappy with the social support they receive within their teams. As a result, they contribute little to group discussions and are unlikely to challenge or help shape the team's objectives. **Anxious attachment** among project team members can be reduced by developing a climate of trust and openness and ensuring the consistently fair treatment of everybody. Recognition and appreciation for contributions also help reduce such anxiety. These ways of dealing with anxiously attached project team members, according to Korsgaard et al. (2003), reduce the team members' anxiety and builds their confidence in themselves and the reliability of the project team as a whole. In turn, they increase their positive attitude towards the team, speak more positively and optimistically, and create a virtuous cycle in which the other project team members then give them more social support and attention.

9.2.4 Potency

There is generally a positive relationship between project team members' collective confidence in the team's ability to deliver – team **potency** – and team effectiveness (Guzzo et al. 1993). Group potency can be developed by nurturing the skills of project team members, so that they feel that they can rise to the challenge of their tasks. This builds confidence and enthusiasm, creating a shared climate of group potency. The positivity created by a sense of potency spreads amongst team members via emotional contagion. Emotional contagion is a form of social influence by which team members' emotions influence the whole team through the conscious and unconscious induction of emotional states and behavioral attitudes. George (1996) uses the term '**group affective tone**' to describe the shared emotional climates that typically emerge in teams. When individual team members display excitement, enthusiasm, and self-belief, the team as a whole will come to be this way. Group affective tone will have a substantially positive influence on project team outcomes. For example, negative affective tone breeds poor performance and absenteeism in teams. Conversely, positive affective tone boosts productivity, innovation, and effectiveness as cognitive flexibility (which characterizes the positive affect) is amplified via the process of **emotional contagion** (see West 2012).

9.2.5 Optimism

Collective **optimism** can be developed in team contexts by encouraging and rewarding optimistic behaviors and attitudes (Seligman 1998). This is helpful, because optimism is related to how the people working in project teams will cope with adversity. It has also been shown to have a significant impact on performance

in workplace settings (Seligman 1998). For example, optimism reduces ‘defensiveness’, enabling people to see things the way they really are, stopping them from pursuing unrealistic goals, and helping them be open to change. If team members feel optimistic, they are more likely to respond creatively and innovatively to tasks or adversity and to cooperate and support each other. Such creativity and cooperation are fundamental to effective project teamwork. Moreover, optimistic people who exhibit positive affect are more persistent in their work (Erez and Isen 2002). In challenging projects, optimists tend to adopt effective coping strategies, such as seeking social support and the positive reappraisal of negative experiences. Mischel and Mendoza-Denton (2003) point out that we can be much more successful not by ignoring negative events, but by restructuring how we see them in a way that enables us to develop creative and constructive courses of action. Such strategies can be encouraged by project team members, especially the team leader, embodying optimism.

9.2.6 Reflexivity

Team **reflexivity** is the degree to which members of a project team collectively reflect upon their immediate and long-term objectives, processes, and strategies and adapt them accordingly in order to achieve the project **team’s objectives** more effectively (West 1996). Teams that take time out to reflect on their objectives, strategies, and processes are more effective than those that do not. The team reflexivity process incorporates three key elements that should be familiar in project teams: reflection, planning, and adaptation. Reflection refers to awareness, attention, **monitoring**, and evaluation, and project team members should be given time regularly for reflecting on their work. Due to time pressures and resource constraints that many project teams face, this may seem difficult. Therefore, project team leaders must ensure that their teams take the time to reflect and learn. When things go wrong, teams should always ask ‘What can we learn from this?’ Even when project teams excel, the same question should be asked in order to capture the lessons about how they achieved excellence. Project teams, as all others, should commit to celebrating and rewarding their achievements, but they should also identify the underlying reasons behind their success, to ensure that such conditions can be replicated in the future. Reflection should lead to clarifications of intentions and courses of action during the planning phase, followed by the implementation of actions in accordance with these plans for successful changes in the project team. Carter and West (1998) monitored the performance of 19 BBC TV production project teams over a period of one year and found that reflexivity was a significant predictor of their creativity and team effectiveness (measured by audience viewing figures). By reflecting upon project strategies, key project objectives and team processes, reflexive project management teams can plan ahead, actively structure situations, have better knowledge of their work, and anticipate mistakes. Reflexivity requires a high degree of trust and **psychological safety** in project teams, since reflexive discussions are likely to reveal discrepancies between how the team is

performing and how it should be performing. Research into newly formed nursing teams by Edmondson (1996) shows that learning from mistakes and devising innovations to avoid such mistakes only occurs in teams that acknowledge and discuss their errors and how they could have been avoided.

9.2.7 Positive Leadership

Creating these positive project team conditions requires good team **leadership**. Leaders act as models for their team members and thereby have a pervasive, compelling influence on project team processes. How team members behave towards each other and towards customers and clients is highly dependent on the behavior, expertise, attitudes, guidance, positivity, and abilities that their leader brings to the team (Hackman 2002). Team leadership must therefore be clear, effective, and appropriate in order to encourage positive project team processes, such as potency, learning, and reflexivity. Through careful **monitoring, coaching, and feedback**, as well as role-modeling and inspiration, a leader can help the team develop positive and effective processes which enable successful project team performance.

Not only do leaders act as role-models for team members, they also provide information and feedback to employees, structuring their work environment, and developing positive role behaviors and relationships. They can do so by offering an inspiring vision for the project team, such that team members engage with the team's objectives and commit themselves to the team's task. They ensure that every team member is clear about his or her individual roles and understands the roles played by other team members. They orchestrate effective interdependent project teamwork and encourage the team as a whole to regularly take time out to review their performance and how it could be improved. They provide enough positive feedback, thereby helping to coach team members to improve performance, and must bring a positive, optimistic and confident mindset to the team, in turn encouraging similarly positive relationships (West 2012). Debate is important too, and they manage decision making processes in an atmosphere of mutually respectful and supportive debate via constructive controversy (Tjosvold and Wong 2000). Crucially, they act with the integrity, openness, and honesty that together build trust within their teams. It is particularly important for project teams that team leaders ensure their teams work effectively with other teams and do not become impenetrable silos. Project team leaders must make sure that teams cooperate with and support the other teams and departments with which they are required to interact within and across organizations in order to deliver their project objectives.

9.2.8 Social Support

Social support refers to a combination of 'positive social interactions' in teams and to team members 'helping each other'. It thus enhances team effectiveness. Drach-Zahavy (2004) proposes that a project team's performance and learning

processes are enhanced by supportive co-worker relationships. This is because social support aids team effectiveness partially because it helps members to sustain their efforts when working on –less interesting tasks. Social support is also considered a group maintenance behavior that encourages positive team processes, such as potency and communication, buffers against stress, and facilitates well-being. The four main types of team social support are emotional, informational, instrumental, and appraisal (West 2012). Emotional support is the notion of a shoulder to cry on, an encouraging word, and sympathetic understanding. It does not involve giving advice or direction. However, social support also consists of doing practical things to aid one’s colleagues. Providing helpful information to each other during a project is an important element in the overall supportiveness of the team. Instrumental support refers to the practical, ‘doing’ support that team members offer one another, such as one team member taking practical action to aid another in achieving the goals that they are aiming for, sometimes called ‘**backing up**’. This is especially relevant when a team member might be overwhelmed by his or her workload. Appraisal support involves team members helping their colleagues to make sense of or interpret a problematic situation. This would involve helping a fellow team member examine a range of alternative appraisals of a given problem. The more team members support each other, the more cohesive the project teams become. This in turn leads to better mental health of the team members, since we know there is a strong and positive relationship between social support at work and job-related mental health.

Example**Case Study: Best Practice**

Katrina is the team leader of a project management team working at a large renewable energy consultancy based in Germany. The current task of her project team is to come up with a new design for a wind turbine that will be piloted in Germany, before it is rolled out to many other parts of Europe. The task itself is therefore novel, significant, and inspiring for the team members, particularly as they get to see the project through from beginning to the end and have lots of autonomy over decision making. Katrina also frequently reminds the team about the significance and challenge of the task to motivate team members and encourage them to be persistent and creative. This builds team potency and optimism about the team task and reminds team members about the importance of their collective goal.

The project team is made up of nine engineers, all of whom differ in terms of their age, gender, and work experience. Two of the team members are also based outside of Germany and work remotely with the team via virtual communication channels. Team members appreciate that they must make an effort to build positive relationships with one another, and therefore begin the project by organizing an away-day, where all team members have an opportunity to meet and get to know each other. Such activities help build team attachment and trust, particularly for the team members who would be working virtually with the

team. Katerina also sees the diverse team as an opportunity for creativity and innovation and always encourages active participation in decisions, listening carefully and considering each team member's contribution. By doing so, she is allowing them to maintain a strong sense of belonging to the team.

Due to the challenging nature of the project, interpersonal conflict sometimes emerges between engineers within the team. However, Katerina recognizes that interpersonal conflict is detrimental to project effectiveness and therefore deals with any conflict immediately, resolving the problem through effective collaboration. Katerina also encourages team members to support each other, providing instrumental advice or compensating for one another when necessary. Overall, the high levels of trust that Katerina shows the project team members provides them with the confidence and support they need to take new risks in trying to achieve their goals. The teams also rewards creative failure, consistently encouraging team members to try new approaches and to be reflexive, questioning why things did not work out, and to revise them and try again. Regular project meetings also allow the team to take time out to reflect on their current performance and what they need to do differently in future. Using video conferencing technology, the virtual team members are also able to participate in meetings and maintain a sense of belonging and identification with the team. The overall emphasis on the importance of the collective team task, along with the key team processes discussed in this chapter, ensures that the project team delivers its work on time, and that its team members experience a sense of satisfaction, belonging, and fulfillment in their work.

9.3 Conclusion

Overall, co-operative project management teams, and teams of teams, enable effective communication and fruitful collaboration, in which ideas are exchanged and integrated, the workload is shared, mutual support is provided and project opportunities are exploited to their full potential. Positive teamwork also stimulates high levels of creativity and innovation, essential for effective project management. At an organizational level, such positive and effective project teamwork is a powerful strategy for facilitating innovation and thus enhances the organization's ability to respond to change and react to competitors. Simply focusing on deficits in project teams is neither adequate nor helpful for understanding today's workplace. By integrating traditional project teamwork theories with the principles of contemporary positive psychology, positive teamwork can be considered a mechanism for the development of personal strengths, team effectiveness, and the promotion of optimal well-being in project management teams.

This chapter, we hope, will help project teams, team leaders, and their organizations to nourish learning and creativity, foster potency, optimism, and altruism, and take part in effective project enterprise that has a meaningful and fulfilling purpose. There are compelling implications for project team management

to be derived from positive psychology. Our hope is that the prescriptions we offer here will be implemented to the benefit of the work done by project teams and the well-being of those who work within them.

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Dreamteam or Nightmare? Collaboration in Project Teams

10

Simone Kauffeld, Nale Lehmann-Willenbrock, and Sven Grote

Abstract

Contemporary organizations increasingly implement project teams. Often interdisciplinary by nature, project teams unite team members from different departments or areas of expertise within an organization who typically work on non-routine tasks. As such, project teams face a number of inherent challenges. In particular, collaborative task accomplishment is often subject to interpersonal conflict. This chapter highlights the specific challenges faced by project teams and showcases different approaches for conflict management and team development in project teams.

10.1 Challenges in Project Teamwork

Project teams are usually created to operate in parallel to and on top of an existing organizational structure. That is, their team members usually do not work exclusively on the project, but rather still have other responsibilities and obligations within their departments of origin. For example, an interdisciplinary project team consisting of product design engineers, controllers, and marketing experts might

S. Kauffeld (✉)

Department of Industrial/Organizational and Social Psychology, Technische Universität Braunschweig, Braunschweig, Germany
e-mail: s.kauffeld@tu-braunschweig.de

N. Lehmann-Willenbrock

Department of Social and Organizational Psychology, VU University Amsterdam, Amsterdam, The Netherlands
e-mail: n.lehmann-willenbrock@vu.nl

S. Grote

Unternehmensberatung Dr. Sven Grote, Braunschweig, Germany
e-mail: sven_grote@web.de

collaborate for two full days per week, whereas team members return to their respective departments to spend the remainder of their working hours on their regular tasks. Project teams are often formed to pursue **non-routine goals**, such as developing new products or initiating and implementing organizational change processes. This makes them inherently **temporary and unique, and the novel tasks they are working on are rarely structured and often fraught with risk**. As a result, any project team will likely come up against a number of challenges: The members of the project team are lifted from diverse departments and disciplines at short notice and required to convene outside of their regular everyday responsibilities to form a functioning team and to collaborate towards achieving a shared project goal. The complexity of projects, the cross-functionality inherent in project team composition, the temporary nature of team membership, fluid team boundaries, and the fact that the project team remains embedded within the wider organization all pose unique challenges that may impede their effective work (Edmondson and Nembhard 2009). Moreover, many projects are characterized by **time pressures** and by the **pressure to succeed**. These features of project teamwork make it difficult, yet essential to identify a project team's strengths and weaknesses in terms of the crucial factors inside and outside of the project that can promote or inhibit project team success. Identifying such strengths and weaknesses as early as possible can lay the ground for efficient, harmonious collaboration in project teams.

The following sections will elaborate on the internal and external conditions needed for successful collaboration in project teams. We will discuss the potential problems and pitfalls that can lead to conflict in project teams and describe how a systematic team diagnosis can identify strengths and weaknesses of project teams in order to provide the basis for meaningful team development measures.

10.2 Psychological Background: Critical Factors for Successful Collaboration

Project teams differ from regular, long-term teams. Whereas regular teams are part of the enduring organizational structure, project teams are temporary in nature. The members of project teams need to balance their project work and their regular duties and responsibilities in the organization. Most projects exist in parallel to the existing organization, such that project team members can only spend part of their working hours on project tasks. Figure 10.1 illustrates this setup in a sample project involving team members from design engineering, assembly, sales, and shipping (for a detailed description of project organization, see De Marco 2011).

The specific organizational characteristics of project teams imply that they need to define, clarify, and agree upon their goals as an essential first step. Group cohesion and mutual responsibility, which are common features of regular work teams within most organizations, will have to be developed deliberately in project teams. Moreover, project team members need to negotiate priorities, as they face the daily challenge of balancing their project work and their regular responsibilities

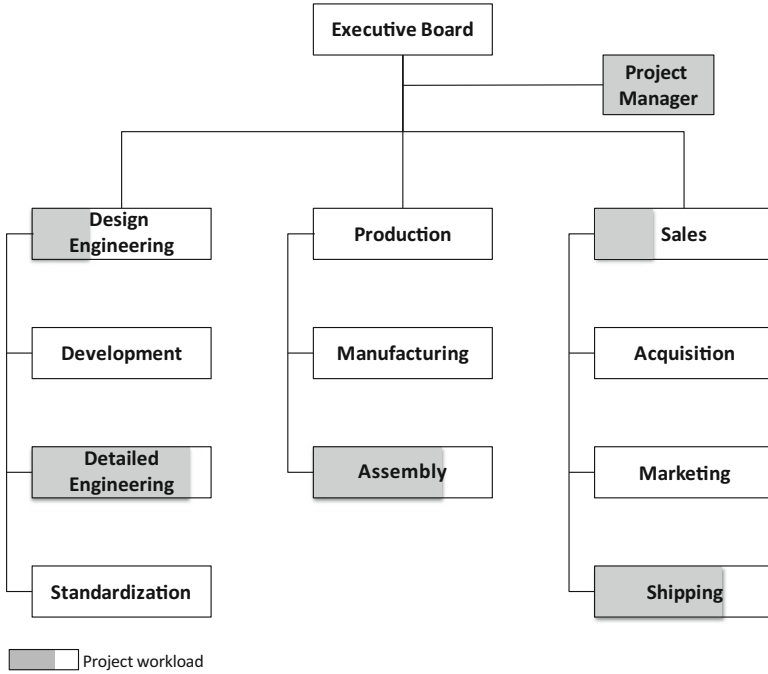


Fig. 10.1 Typical project work within existing organizational structures

within the organization. Coordinating project efforts among project team members requires multiple negotiations to mediate different interests and demands. Bouwen and Fry (1996), among others, have coined the term “role ambiguity” in this context. In project teamwork **role ambiguity** occurs particularly when non-routine project tasks have to be accomplished by combining the skills and expertise of team members from different departments within the organization, while team members simultaneously need to juggle their routine tasks and responsibilities. Due to these contextual conditions in project teamwork **task accomplishment** has been identified as a specific **challenge**. Similarly, ensuring group cohesion and taking responsibility can become difficult factors in project teams (Kauffeld 2001).

10.2.1 Internal Success Factors

The factors within project teams that determine their project’s success can be visualized with a **pyramid model** (Fig. 10.2). The four dimensions depicted in this model are characteristic features of well-functioning teams. At the basis of the pyramid, two factors describe the **structural orientation** of a team: **goal orientation** and **task accomplishment**. Building on this basis, two additional success factors describe its **personal orientation**: **cohesion** and **taking responsibility**.

Fig. 10.2 The team pyramid
(Adapted from Kauffeld
2001, p. 138)



These four factors describe the internal team environment; the external environment is represented by the circle surrounding the team pyramid in Fig. 10.2.

Goal Orientation A shared sense of purpose is the foundation for teamwork in the pyramid model. A team can only function well if all team members have agreed on clear goals and if the requirements of their tasks are unambiguous for them. Without such foundations, teamwork cannot be successful. If some team members are unaware of the team's goals and task requirements, or if the team goals are not accepted by all team members alike, team members will likely aim for different, potentially incongruous goals or follow their **individual interests** rather than working towards shared **team goals**. Individual goals may even contradict the team's or the organization's wider goals. Therefore, team goals need to be **stated precisely**, and they need to be **reachable**. To improve goal orientation, teams should have **criteria for assessing goal attainment**, such that team members can take adequate steps for improvement when necessary.

Task Accomplishment When a (project) team has agreed on team goals, task accomplishment becomes more likely. However, setting goals and getting people oriented towards those goals as a team does not necessarily always result in efficient task accomplishment, particularly when the team is working on a complex project. In order to collaborate efficiently, each team member needs to have a clear understanding of his or her **priorities** and **tasks** as a member of the project team, in addition to having unambiguous goals. As a part of their collaborative task accomplishment, team members need to coordinate their efforts and share information when and where it is needed.

Cohesion When the second "layer" in the pyramid model has been reached, meaning that a project team is actively engaged in accomplishing their tasks,

cohesion can develop. Mutual **trust, support, and respect** are signs of high group cohesion in a team. Experiences of solidarity and team spirit are more likely to occur when a team successfully coordinates its members' efforts. Similarly, team members are more likely to be satisfied with their project team when the team manages to **keep goal and task-related conflicts in check**. When different goals contradict each other, when priorities are ambiguous, or when team members' efforts are not coordinated well, rivalry and misunderstandings become inevitable. Research has linked cohesion to improved team performance (e.g. Tekleab et al. 2009). Trust has also been identified as an influential factor in the context of team cohesion and involvement (Ferres et al. 2004).

Taking Responsibility At the top of the pyramid (Fig. 10.2), teams have reached a stage in their collaboration where they actively assume responsibility for their work as a team. Teams that accept responsibility are characterized by high levels of involvement, dedication, and commitment. The three lower 'layers' in the pyramid model form the basis for taking responsibility: When goals and priorities are clear, when team members respect and help each other, when they contribute all relevant information, and when they view themselves as a team, it becomes more likely that they will **take responsibility**. Empirical findings show that teams are indeed more prone to taking responsibility in terms of being proactive when their members **support and respect each other** (Williams et al. 2010). Similarly, a recent study has identified trust in **co-workers** and **team commitment** as important antecedents of positive extra-role behavior toward one's team (Lehmann-Willenbrock et al. 2013b). The role of taking responsibility has been studied at the micro-level of team interaction dynamics as well. Research on team communication processes during organizational meetings shows that proactive behavior, such as showing interest in change or planning actions, is rare, but all the more valuable for team and organizational performance outcomes (Kauffeld and Lehmann-Willenbrock 2012). Many teams spend their meeting time complaining instead of taking responsibility, often getting caught in negative spirals (Lehmann-Willenbrock and Kauffeld 2010). When this happens, team productivity and innovation will suffer, and the group mood turns negative. By contrast, more proactive meeting behavior leads to better team results and an improved group mood (Kauffeld and Lehmann-Willenbrock 2012; Lehmann-Willenbrock et al. 2011b).

10.2.2 External Success Factors

Focusing on the intended goal, accomplishing the team's tasks, creating cohesion, and accepting accountability and responsibility are internal factors that impact any project team's success. However, **external conditions** are critical for successful collaboration in project teams as well. In Fig. 10.2, the circle surrounding the team pyramid symbolizes the team's environment. For example, management, the flow of information in the organization, and organizational rules and regulations can

have a considerable impact on a project team's collaboration. Problems arising in the external environment of a project team will also affect internal team conditions.

Previous research has identified specific external conditions as drivers of project success or failure. For example, **cross-project collaboration** or **network embeddedness** (Grewal et al. 2006) can be critical for project success. Project teamwork often requires **cooperation** or **task coordination** across organizational divisions or even across entire organizations. Frequently, different sub-projects need to be coordinated, or there might be several project teams working on different aspects of one overarching problem simultaneously. Especially when a project is more complex, project teams often depend on other teams or departments within the organization to be able to accomplish their own project tasks. These interdependencies may give rise to conflict between different teams.

Another external factor concerns the allocation of resources. Project failures are often due to a lack of **resources** that constitute a source of conflict. Project managers may need to use political skills to navigate projects around such issues (so-called "politicking"; Peled 2000).

Furthermore, whether or not a project team can perform well may also depend on the internal and external **stakeholders** of the organization. Some projects literally live or die depending on their commissioning entities or **customers**. For example, partial results, interim reports, or suggestions concerning the aims and direction of a project are often subject to review by customers. As customers' requests and preferences are usually not specified precisely at the beginning of a project and may change throughout its later course, collaboration between the project team and external customers can be an ambiguous process, which may develop positively, but which may also result in a negative downward spiral (see an illustrative example from virtual project teamwork in Chap. 18, Hertel & Orlikowski).

10.2.3 Conflict in Project Teams

Similar to the distinction between structural and personal orientation in the team pyramid model (Fig. 10.2), two kinds of potential conflict can be found in project teams: **task conflict and relationship conflict** (e.g. Lehmann-Willenbrock et al. 2011a). Task-related arguments in teams – for example, in terms of discussing the best possible alternative for solving a problem – can be described as **functional conflict**. On the other hand, **dysfunctional conflict** or affective conflict is characterized by distrust, fear, anger, frustration, and similar negative affective experiences (Pelled 1996).

The Effects of Conflict

Both task-related and relationship or social conflict can impact team performance and team members' satisfaction negatively (De Dreu and Weingart 2003). However, **moderate task conflict** may also have beneficial effects for the team, as long as relationship conflict remains limited (Jehn and Chatman 2000). For example, a moderately intense task conflict could arise when team members disagree about the

right software choices for solving a specific problem. The resulting argument or discussion can aid decision-making in the team by selecting and elaborating the best solution for the specific problem. However, there can be other, personal motives at the core of an apparent task conflict (such as personal dislikes or animosity between team members that are not expressed openly, but rather ‘vented’ via supposed task-related differences). In that case, the conflict will no longer be considered moderate, because what was assumed to be a task conflict can spill over and turn into a relationship conflict.

Presumably, **moderate task conflict can be beneficial**, because diverse opinions and ideas can promote team performance. Indeed, the benefits of moderate task conflicts have been shown in the context of group problem-solving and team creativity (Laughlin et al. 2003; Paulus and Nijstad 2003).

- ▶ Effective decision-making processes in a project team largely depend on the team’s ability to tolerate competing opinions and approaches and to generate mutual decisions that are acceptable for all team members (Sambamurthy and Poole 1992).

For this reason, task-related conflict should be handled carefully. Teams need to consider different opinions and ideas, while at the same time ensuring group cohesion (Jones 2005). If a project team manages to cope well with task conflict, the quality of the solutions generated by the team will be higher than the quality of individual solutions (Lewicki and Litterer 1985). However, if a project team fails to cope with or integrate diverse opinions or opposing ideas, task conflict can turn into harmful relationship conflict. Such developments can pose a threat to project team success, as **relationship conflict** impairs the team’s performance particularly when working on non-routine tasks (Lehmann-Willenbrock et al. 2011a).

Thus, structural and personal orientation, or task and relationship conflict, are mutually interdependent. When task conflict is suppressed or buried, it can escalate and incur relationship conflict. Moreover, relationship conflict between individual members of a project team can affect task accomplishment and lead to additional task conflict.

When dislike grows and team members feel increasingly irritated or annoyed with each other, team cohesion will suffer. Trust in teams has an impact on this development (cf. Tindale et al. 2005): Diminishing trust between team members can lower the threshold for relationship conflict in particular. At the same time, teamwork can remain constructive when teams manage to uphold co-worker trust (e.g. Ferres et al. 2004).

One simple reason why relationship conflict is harmful for project teamwork is the fact that solving social conflict between team members takes time and effort, thus consuming resources that are then no longer available for accomplishing the team’s actual tasks. Moreover, relationship conflict can trigger stress and feelings of anxiety, and can impair the team’s critical thinking abilities. Relationship conflict frequently leads to attributions of hostile motives to other people’s behavior

as well as an **escalation of the conflict** (Jones 2005). For example, in a well-functioning team with little relationship conflict, a mistake made by a team member will likely be attributed to a simple error, rather than hostile intentions. The team will proceed to focus their attention on correcting the error. In a dysfunctional team with pronounced relationship conflict, on the other hand, the team member who “caused” the error will have to face his co-workers’ outrage and possible attempts to retaliate or take revenge.

- ▶ Conflict in a project team can impair team productivity and performance. Suppressed task conflict can escalate and result in relationship conflict.

Capitalizing on Conflict

To ensure well-functioning teamwork and high team performance, project managers and project teams need to find the right **balance** between permitting task conflict as a source for generating more ideas and creative solutions on the one hand and preventing or at least detecting the escalation of task conflict turning into relationship conflict as early as possible. Successful **conflict prevention** requires a thorough **team diagnosis** that identifies the strengths and weaknesses of the team. Team development interventions or long-term team coaching can build on those results and leverage team resources.

10.3 Footholds for Improvement: Team Diagnosis and Team Development

10.3.1 Team Diagnosis

Team diagnostic surveys can shed light on the everyday reality of a project team and point out potential areas for team development. An example for a team diagnostic survey is the Team Work Questionnaire (TWQ, Kauffeld 2004). The TWQ is conceptually based on the team pyramid model described above (Fig. 10.2). Applying a set of 24 items, it measures the four dimensions of goal orientation, task accomplishment, cohesion, and taking responsibility. Team members rate their agreement with each of these 24 items on a scale ranging from 1 to 6 (e.g. for task accomplishment: “We provide all important information to the team” versus “We keep information to ourselves”). The results of team diagnostic instruments help identify strengths and weaknesses of a (project) team. As such, they offer a basis for initiating conversation about specific aspects of working together in a project team, and for discussing and implementing ideas for improvement in project teamwork. In this context, it is highly recommended to **integrate** a team diagnosis into a **regular team development process** within the organization. However, team diagnosis can also be the starting point for a

self-organized development process initiated by the team. In sum, there are four possible **aims of team diagnosis**:

1. Providing a structural basis for team development processes by measuring essential work-related topics in project teams.
2. Identifying pitfalls or weaknesses concerning group cohesion and collaboration and deducing team-specific interventions for improvement.
3. Raising employees' and supervisors' awareness of potential problems and solutions for efficient project team collaboration. Through increased awareness of these issues, the entire organization can benefit (beyond the project team).
4. Developing best practice processes that provide the organization with important hints concerning efficient project work design.

A typical **team diagnosis** can be described with **three characteristic steps**:

A Sample Team Diagnostic Procedure

1. **Information:** As early as possible in the process, team members need to be informed about the purpose and scope of the team diagnostic survey. Similarly, they need to be educated about the process following the diagnosis in order to be motivated to participate. It is important to emphasize that participating in any written survey is voluntary and that any individual data will be kept strictly confidential.
2. **Survey completion:** Team members are asked to complete the survey by themselves, without discussing or sharing their answers with their fellow team members. This procedure ensures that differing views and opinions are captured realistically.
3. **Feedback:** The surveys are evaluated and a presentation of the project-specific results is prepared. The specific results of the team are easier to evaluate when they can be compared against diagnostic results from previous/other projects.

Following the team diagnosis, the results need to be presented to the project team and project manager. This feedback session lays the groundwork for a collaborative exploration of the results and their causes, which can then yield insights into possible improvements. This exploration initiates the team development process.

As an alternative to traditional surveys, team diagnosis can also be based on objective measurements of project teamwork in critical situations. One example of objective data concerns the observation of team members' behavior during team meetings, in which team members are required to pool their individual expertise for solving problems. Analyzing functional and dysfunctional behavioral processes in team meetings offers a unique opportunity for highlighting the strengths and weaknesses of a team and can provide a powerful tool for initiating team reflection (see Lehmann-Willenbrock and Kauffeld 2010).

10.3.2 Team Development for Project Teams

Team researchers describe team reflection skills as an essential component of team development, because **reflection heightens team effectiveness** (West 2004). Team reflexivity means that a team continuously reflects on and modifies its collaborative functioning (e.g. Schippers et al. 2008). For project teams who navigate in a complex, dynamic task environment in particular, team reflection skills become crucial for promoting the accomplishment of their tasks and for challenging familiar habits and processes with a critical eye. Thus, increased team reflection is an important goal for any team development intervention.

Team diagnostic results provide a basis for **team reflection processes**. During the feedback session, project team members and project managers should strive to gain insights into their strengths and weaknesses. Together, they should develop **practical solutions and action plans** that will afterwards be implemented by the project team. Topics that are not problematic for the team can be dealt with quickly, whereas more difficult topics or critical issues should be discussed in detail. However, some time should also be spent on reflecting upon those aspects that are indeed going very well in the team's work or those things that the team is proud of achieving or having achieved together. The latter is particularly important for achieving a resource-oriented or solution-focused state of mind in the team. The following sample questions can guide a team through their reflection process.

Sample Questions for Reflecting on Team Collaboration

- What is positive about our collaboration? What is going well?
- What is not going so well? Which aspects of collaboration should we improve?
- What are the reasons for misunderstandings/conflict?
- What can we do to become a better team?
- What can we learn from our previous experience together?
- Which conclusions can we draw for our future as a team?
- Which specific steps will we take as a project team?
- Which consequences does every team member see for himself/herself personally?

Several weeks after the team reflection workshop, a follow-up session should be arranged. In this follow-up session, the team are asked to **evaluate** the extent to which the steps planned in their workshop have actually been implemented and the extent to which these steps have actually achieved the desired outcomes. After such an evaluation, the team may need to revise their action plan or integrate new action items. Evaluating the success of such a team reflection is an important measure for making sure that insights gained and actions planned in the team reflection workshop are actually transferred to their everyday work (e.g. Kauffeld and Lehmann-Willenbrock 2010).

Some teams will be able to administer a team diagnosis and initiate subsequent team development by themselves, while others will require a professional

intervention involving an external counselor (Jones 2005). Receiving support from a **project coach** or team counselor can be particularly helpful for organizations that have little experience with team diagnosis and/or team development practices. An external project team coach can facilitate team processes and conflict management. Moreover, a team coach can provide substantial psychological skills in team diagnostic methods as well as conversational techniques that promote team development.

When team members are guided through a systematic, structured reflection and analysis of their collaboration, this can yield important hints about potential improvement. The **approaches used for team reflection** are manifold, as exemplified here.

Approaches to Team Development (Adapted from West 2004)

1. **Team start-ups** are team interventions that begin when the team first convenes. Rather than waiting for a crisis to occur, team start-ups take a preventive approach to team development by including team building as a standard element of forming a new team.
2. **Regular formal reviews** can enable the team to apply a meta-perspective concerning their collaborative processes. At regular intervals (e.g. 1 or 2 days every 6 months), the team reflects on its success, achieved goals, difficulties, and the quality of team communication.
3. **Working on a known task-related problem**, as a third possible approach to team development, concerns problem-solving workshops that aim to solve very specific problems that were defined prior to the workshop. The team takes a “timeout” for the team development intervention in order to work on their problem and derive measures for solving it. This type of team development intervention is also used by experts for teaching Total Quality Management (TQM) or Continuous Improvement Process (CIP) techniques.
4. **Identifying problems**: Some team development interventions are aimed at specifying relevant problems in the team. Prior to the intervention, there is information about inefficient teamwork, whereas the reasons for this inefficiency are not clear. In that case, team interventions can help clarify the causes of problems in the teams in order to achieve a shared understanding of the team situation. On that basis, the team can then generate ideas and strategies for solving their problems.
5. **Social process interventions** focus on intra-team relationships, on social support within the team, on the team climate, or on conflict management. These interventions are aimed at improving the social climate within the team and ensuring team members’ well-being. For example, when a team suffers from a lack of social support, a social process intervention can train the team members to consult each other and to provide peer support.

(continued)

Module I: Activation	Orientation Team development Review and identification of need for action
Module II: Action	Supervisor coaching Evaluation with act4teams® (analysis of a videotaped group discussion)
Module III: Reflection	Supervisor coaching Team development Reflection of changes and improvements to date; task planning
Individual act4teams® evaluation (optional)	
Module IV: Progress	Supervisor coaching Team development Review and agreement on additional measures
Module V: Advanced Action	Supervisor coaching Evaluation with act4teams® (analysis of a videotaped group discussion)
Module VI: Evaluation	Supervisor coaching Team development and feedback concerning the act4teams® results Reflection of recent changes and development; decision to continue or conclude the coaching

Fig. 10.3 The act4team-coaching® process (Translation; original source: 4A-Side, www.4a-side.com)

6. **Continuous team coaching** is a new trend in team development. Team coaching means that a team is accompanied by a coach on a regular basis. For example, act4team-coaching® is a continuous team development tool that focuses on team interaction processes and highlights potentials and pitfalls by means of real behavioral observations (Lehmann-Willenbrock and Kauffeld 2010). An initial interaction assessment serves as a basis for evaluating where a team stands at a given point in time, followed by subsequent reflection and optimization periods during which the team is actively involved in making changes and process and result evaluations used to point out where these changes have been successful and where there may still be some work to do. Team coaching interventions often include the team's environment as well, for example by including supervisory coaching elements. Figure 10.3 shows the act4team-coaching® process as an example.

10.3.3 Conflict Management in Project Teams

To efficiently cope with disagreements or conflicting opinions in a team, team members need interpersonal skills such as the ability to show genuine interest for others' ideas and opinions, and the potential to challenge and reconsider their own ideas and attributions (Edmondson and Smith 2006). These interpersonal skills are

not always readily available in the organizational context (Edmondson and Nembhard 2009). In light of the special challenges illustrated above, **interpersonal skills and strategies for coping with disagreement** and resolving intra-team conflict become especially important for project teams. Conflict can mark a turning point in team development that needs to be **managed carefully**. The final section of this chapter describes several possibilities for conflict management in project teams.

Conflict Management with the Help of an External Coach or Mediator

Addressing conflict openly tends to be an uncomfortable experience, even though team functioning is often severely impaired by conflict. When a conflict develops, teams are prone to search for quick, inferior solutions or ignore the conflict altogether. An external team **coach** or conflict mediator can be very helpful in this context. The coach should address contrasting opinions, misunderstandings, and conflict in the team, and should aim for a thorough elaboration and discussion of the underlying problems within the team. As opposed to the members of the project team, an external coach can make proposals and arguments ‘scot-free’. This can provide important opportunities for the team to focus on solving their task-related conflict constructively, rather than getting caught up in negative relationship conflict spirals (cf. Jones 2005). Coaches or mediators usually guide the team through this process by providing an agenda and set of priorities.

- ▶ An external coach or facilitator can help a project team utilize task conflict in a constructive manner. To do so, task conflict needs to be revealed first. Second, coaches or consultants need to promote dialog and constructive controversy. Finally, the team should be enabled to consciously sustain and utilize task-related controversy by critically evaluating different alternatives for solving a problem.

Usually, identifying task-related problems will not suffice. Instead, the team should be supported in developing a vivid discussion culture concerning aspects of its tasks as a next step.

When a team suffers from **relationship conflict**, external coaches or consultants need to be particularly careful. Addressing problems directly, while often suitable in the case of task conflict, tends to be too blunt when the team is facing relationship conflict. In any case, the team should be actively involved in identifying the problems and underlying causes that have led to a conflict. Importantly, the team should learn to distinguish between structural issues in the team (i.e. aspects relating to goal orientation and task accomplishment as illustrated in Fig. 10.2) on the one hand and difficulties due to personal factors in the team on the other hand (i.e. cohesion and taking responsibility).

Self-management Practices for Managing Team Conflict

There are several possible approaches to managing conflict in project teams. First, individual team members can learn to become more aware of their own feelings and

attributions during the heated discussions inherent in relationship conflict. Instead of restraining emotions, team members should **reflect** on their reactions and **reframe** the situation (Edmondson and Smith 2006). For example, a situation in which other team members are initially perceived as hostile can be reframed in terms of different opinions and open disagreement. In order to become calm and capable of inquiring into different opinions and considering alternative explanations, **reflection** should take place as it happens, rather than in hindsight. For example, when involved in a conflict-ridden team discussion, team members can stop briefly to **examine their emotional reactions** to what is being said, to **acknowledge their own attributions** within the situation, and to **'cool down'**. Only then can alternative interpretations even be considered. Although these alternative interpretations may still be biased, they have the potential to stop negative downward spirals in team interaction (Edmondson and Smith 2006). When individual team members are too upset to reflect on and reframe what is happening, **others can step in and mediate**. However, in some cases where relationship conflict has escalated and/or involves the entire team, an external coach or group facilitator may be necessary.

Second, a project team can continuously **improve communication skills at the team level**. For example, team members can take turns in team meetings to ensure that different opinions and ideas can be contributed and discussed freely (i.e. become group facilitators for their own meetings; see Lehmann-Willenbrock et al. 2013a). The team as a whole can aim to create a positive meeting culture by allowing and considering emotional reactions and by exploring underlying problems. Research shows that functional team interaction processes are linked to positive team and organizational outcomes in a range of different industries (Kauffeld and Lehmann-Willenbrock 2012). Rather than ignoring relationship conflict until it is too late for such self-managing practices, the team can set a mutual goal to address misunderstandings and personal discomfort in the project team as early as possible.

Third, project teams can take measures to actively **manage their intra-team relationships**. This includes building trust by getting to know each other, developing awareness and initiating an explicit discussion of diverging opinions within the team, and carefully managing potential organizational faultlines (Edmondson and Smith 2006). Faultlines are hypothetical dividing lines that split a team into subgroups based on one or several characteristics. For example, organizational faultlines are at play in project teams when some team members have worked together before, such as employees from sales and shipping departments (Fig. 10.1), whereas other team members have not interacted with them previously, such as design engineers working with shipping employees. Faultlines are strongest when the subgroups are very different. In our example, a strong organizational faultline would exist when all male project team members are young engineers, whereas all female project team members are older marketing employees (faultline attributes: gender, age, and type of occupation). Teams with strong faultlines are particularly prone to experiencing conflict (Thatcher et al. 2003). Thus, project teams should acknowledge potential organizational faultlines when they start working together and invest time and effort into getting to know each other equally.

Project Managers' Potential for Managing Conflict

Leadership can play a critical role for organizing and facilitating project teamwork. Successful project leadership requires the ability to identify and understand problems in the team in order to intervene adequately (Rupprecht et al. 2010). Similar to team reflection discussed here as a basis for team development, efficient leadership in the context of team conflict largely relies on the **project manager's reflection skills**. Interestingly, research on team leaders with differing amounts of expertise shows that the ability to analyze team conflict correctly depends on the quality rather than the quantity of leadership experience (Rupprecht et al. 2010). These results suggest that effective conflict management can be promoted by encouraging project managers to reflect on their practical leadership experience. Project managers (much as other team leaders) need to become aware of the complex nature of team conflict. One way to address this is by dividing a complex problem into smaller problems that can be solved step-by-step, thus creating positive and empowering experiences both for the project team and for the project manager. In addition, Rupprecht et al. (2010) propose that team managers should provide regular reflection opportunities during teamwork in order to identify problems early on and prevent the conflict from escalating.

Upon identifying a team conflict, project managers should initiate steps toward team development by promoting constructive coping strategies. As a first step, they should set a good example by admitting fallibility and by actively asking for team members' contributions toward creating a constructive team climate (Nembhard and Edmondson 2006). By doing so, project managers can ensure that team members state their ideas openly, raise any concerns they might have, and feel safe to ask questions.

Finally, project managers can be seen as **boundary spanners**. They should act as negotiators between the team and its environment (illustrated by the surrounding circle in Fig. 10.2), for example by gathering information from external sources, by balancing external requests, and by reporting the project teams' (interim) results to top management or external customers who initiated the project. Boundary-spanning activities also concern the integration of diverse knowledge within the project team and contextual knowledge surrounding the project team (Ratcheva 2008). Moreover, boundary-spanning is necessary for protecting the project team from excessive external demands (Faraj and Yan 2009), which is particularly important considering the typical organizational setting of project teams as described in the beginning of this chapter (Fig. 10.1). Managing the project team's boundaries is an important leadership function for conflict prevention, in terms of ensuring efficient information flow, balancing intra-team processes and managing the interaction with the team's environment.

In sum, due to time constraints and pressure to succeed in project teamwork, professional conflict management during the course of a project is often a mere afterthought. The 'silver bullet', i.e. the most desirable route to efficient and trustful project team collaboration, lies in using preventive team diagnosis and team development early on, preferably when the team commences its work.

Moreover, it is important to allow for team reflection time throughout the course of a project. Ideally, a project team should be supported by a continuous team coaching process throughout the course of its project (Lehmann-Willenbrock and Kauffeld 2010).

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Rafaela Kraus and Ralph Woschée

Abstract

Much contemporary research involving commitment and identification has focused on the organization as a whole. Since organizations change very quickly, the focus shifts more and more to the level of teams and projects. Commitment and identification also describe how tightly employees are linked to a project. While commitment primarily describes affective aspects, identification means treating team membership as a personal attribute. For working in projects, which is characterized by unique, complex tasks and unknown solutions, a highly committed team that identifies strongly with the project is a major factor for success.

11.1 Meaning and Focus of Commitment and Identification

11.1.1 Meaning of Commitment and Identification

According to Tajfel and Turner (1979), being part of a project or organization is a means for the employee to develop and maintain a **social identity** as part of a positive self-perception. Van Dick (2004) goes further to say that **identification** with a project or an organization helps answer the question: “Who am I?” Therefore, the fact of belonging to a project is reflected in the employee’s personality.

R. Kraus (✉)

Fakultät für Betriebswirtschaft, Universität der Bundeswehr München, Neubiberg, Germany
e-mail: Rafaela.Kraus@unibw.de

R. Woschée

Department Psychology, Ludwig-Maximilians-University Munich, Munich, Germany
e-mail: woschee@psy.lmu.de

Identification describes the **cognitive aspects** of an employee's attitude towards an organization or project (van Knippenberg 2000). In addition to the feeling of belonging to a project, identification also includes the employee's **feelings** and **subjective opinions** regarding this feeling of belonging (van Dick 2004).

- ▶ A strong feeling of identification with a project can increase employees' motivations by linking it to their feeling of self-esteem. They will also be more likely to defend the project against any forms of hindrance or opposition. Identification is therefore a major factor for a project's success.

Organizational commitment, which has been an important subject for organizational psychology for more than 30 years, explains the employees' ties to their organization as a mutually **beneficial relationship**. **Commitment** refers to the "psychological ties" between organizations and employees, which contribute to making an employee's actions controllable (Mathieu and Zajac 1990; Meyer and Herscovitch 2001). When one therefore speaks of commitment, one focuses on the **feelings** involved, to be exact: the affective aspects. By contrast to the terminology of identification, the organization is here not considered part of the employee's personality ("I am of the Siemens Tribe!"), but perceived as something separate from him or her.

Commitment develops when employees appreciate certain aspects of working in projects, for example, interesting or challenging tasks or a good working environment, but also the relation of monetary and non-monetary incentives and the amount of contributions that they have to make. Commitment is relatively **stable** and can only be influenced or changed slowly over longer periods of time.

Identification, however, is developing on the basis of perceived similarity and shared opinions between an organization's or project's members. Identification can be experienced very differently depending on the employee's environment and situation; it is more **dependent on context** (van Dick 2004).

Despite these differences, **identification and commitment overlap** in various areas; the close connection between both concepts has been established empirically (Riketta 2005). The separation of these concepts may also originate from the different traditions of their respective original disciplines (identification – social psychology, commitment – organizational psychology) (van Dick 2004). Other similar concepts are **job satisfaction and loyalty**. However, the main distinction from the concept of commitment is that job satisfaction emphasizes the evaluation of one's current working situation, whereas commitment focuses on a longer period of time and is more permanent once achieved. Furthermore, a committed employee has a more active role than a loyal one (Mowday et al. 1979).

11.1.2 What Is the Focus of Commitment and Identification?

Commitment and identification cannot be applied only to the organization as a whole, but also to other *foci*, e.g. careers, occupations, forms of employment,

project teams or work groups, executives or top management (Meyer and Allen 1997). Especially in major international corporations, commitment towards the team gains more and more importance due to constant changes in the course of outsourcing, offshoring, mergers, and acquisitions (Riketta and van Dick 2005). The constant changes in business and a growing distance to the overall organization within larger corporations lead to a closer **relationship with the immediate work environment**, as it is easier to develop a “family connection” with people one sees on a regular basis.

Factors that affect the **development of such a connection** can be joint achievements and shared goals, but also benefits like the social rank within a group or moral obligations towards co-workers.

Analogous to Organizational Commitment, Commitment Regarding a Project Can Be Split into Three Components (Meyer and Allen 1997)

- **Affective commitment:** Describes the employee’s emotional ties to the project. The project is of great personal importance to the employee; he or she is proud of his or her work and feels a certain connection with co-workers. (“My team is like a family to me!”)
- **Normative commitment:** The employee is committed out of moral-ethical reasons (“Our project leader has always supported me, I can’t abandon her now!”)
- **Rational or calculative commitment:** The employee’s attachment to the project is due to the disadvantages he or she would suffer upon leaving the project, e.g. the loss of rewards, the imposition of penalties, or the lack of adequate alternatives.

The importance of the employee’s commitment for the project’s success is obvious: Project members who identify with and feel committed to a project are more likely to stay loyal to the project for its entire duration; they reject alternative job opportunities, tolerate greater stresses; they avoid being absent and strive for an efficient way of working, avoiding idleness or anything that could disturb the project’s flow.

Example

Mr. Anderson has been working for an American consulting company for the past 2 years. A year ago, he joined a project concerning the further development of B2B platforms for business retailing. His previous function as a “stand-in” in various projects was not uninteresting, but he could not shake the feeling that he was doing mostly preliminary work and his contributions were of no particular importance to the project’s success. His current project team consists mostly of young people between the ages of 25 and 30, who are also privately on good terms and spend a lot of their time off together. Mr. Anderson, who has had little

experience in this particularly challenging field, was delighted when he was offered the position. He describes his learning curve as “steep”, since he was **extremely eagerly to incorporate the new technologies and processes** – sometimes in voluntary overtime – which earned him the project leader’s praise. He feels his contributions are of vital importance to the project, and he is happy about this success. Additionally, the project’s client is very likeable. He also enjoys cooperating with a very “young” team. Mr. Anderson views the project as “his” project and revels in discussing it with friends even after work.

Recently, Mr. Anderson was called by a headhunter. He was offered an interesting position at a venerable reinsurance company that would pay considerably more. Since Mr. Anderson’s wife is pregnant, he sometimes worries about his financial situation. Additionally, the rumor goes that the consulting company will be bought out, so his future is uncertain. He **refuses the offer** nonetheless. After all, his team relies on him. God knows whether they can make it without his help. Mr. Anderson is proud of the successes to date and cannot just leave his “baby” behind. Besides, he still has many ideas he wants to contribute.

This example demonstrates that emotional commitment has an extreme impact on the willingness not only to work hard for a project, but also to accept disadvantages like lower income.

These are the three related **factors of affective or emotional commitment** put forward by Mowday et al. (1979, p. 226):

- A strong belief in and acceptance of the organization’s goals and values
- A willingness to exert considerable effort on behalf of the organization
- A strong desire to maintain membership in the organization

The conventional and most commonly used tool to determine **organizational affective commitment**, the **Organizational Commitment Questionnaire (OCQ)**; Mowday et al. 1979), is based on these three factors and includes 15 items (Table 11.1).

Table 11.1 Examples of items of the Organizational Commitment Questionnaire (OCQ; Mowday et al. 1979)

A sample item used to measure acceptance of and identification with goals and values:	A sample item used to measure willingness to exert considerable effort:	A sample item used to measure a strong desire to maintain membership in the organization:
“I find that my values and the organization’s values are very similar.”	“I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.”	“I would accept almost any type of job assignment in order to keep working for this organization.”

11.2 Background and Relevance from a Psychological Point of View

11.2.1 What Is the Cause of Commitment and Identification?

The **causes for the emergence of commitment** and identification with a project team are manifold. On the one hand, the emergence of commitment can be explained by a **process of self-justification** in order to rationalize one's behavior (Salancik 1977). In this respect, the rejection of alternative working opportunities leads to a stronger identification with the project or organization. On the other hand, commitment can be a reaction to so-called "**sunk costs**". One has already invested so much time, energy, work, and even emotions into a project that one maintains one's commitment to this project simply so that one did not invest in it for nothing. Consequently, people wait until these costs are amortized (Sutton 2007). According to Brockner and Rubin (1985), this can lead to an **escalation of commitment**, that is stronger the more likely it is to reach this goal – e.g. the project's success – the more stable the conditions to reach this goal, the higher the estimated penalty for leaving the project gets, and the fewer courses of action are available to the employee. Thus, increasingly strong pressure impels the employee to decide whether to leave the company or to develop commitment. The **development of commitment** is therefore linked to the availability of at least one alternative as well as other conditions, such as the job market or the reliability of the company. An advance investment of trust in the company's reliability and therefore some commitment exists already from the beginning of the interaction between the co-worker and the organization. **Trust** increases as uncertainties about the transaction partner are reduced, as the exchange relations expand, and as satisfaction from this relationship and the value associated with it grows.

- ▶ Over a specific period of time, not only the quantity, but also the quality of commitment can change (Moser 1996).

According to Pratt (1998) and van Dick (2004), Employees Have a Desire for Identification for the Following Reasons

1. It serves to reduce uncertainties, e.g. during a merger. It gives a sense of belonging and helps prevent feelings of isolation.
2. It leads to increased self-esteem through the transfer of positive qualities associated with the organization or project to oneself.
3. Identification with an organization satisfies the need for a holistic work relationship, especially in the constantly changing private and professional life of modern society: Identification provides sense, meaning, and structure.

11.2.2 Which Factors Influence Commitment and Identification?

Factors Influencing Commitment

Fundamental factors influencing commitment are **job characteristics**, **leadership behavior**, **employee characteristics**, and the **organization's "personality"** (Fig. 11.1). The majority of factors mentioned here relate to the organizational perspective. It is significant for commitment regarding projects that job characteristics, especially work objects, have a direct influence on commitment, whereas organizational characteristics, like career management as an expression of organizational justice, only influence commitment indirectly. Job satisfaction, a psychological concept, which also refers to the attitude towards work and organizations, plays a special role. On the one hand, job satisfaction is considered a requirement for commitment or at least a factor facilitating such commitment; on the other hand, it is a result of strong commitment (Felfe 2008).

Employees' Specific Traits Research on employees' specific traits shows that high self-esteem in terms of one's competence and a protestant work ethic is closely linked to commitment (Mathieu and Zajac 1990). Age and job tenure correlate more strongly with **calculative commitment**, which emphasizes the risks and costs of leaving the organization, while there is evidence that a high level of education diminishes commitment due to better labor market opportunities (Six and Felfe 2004).

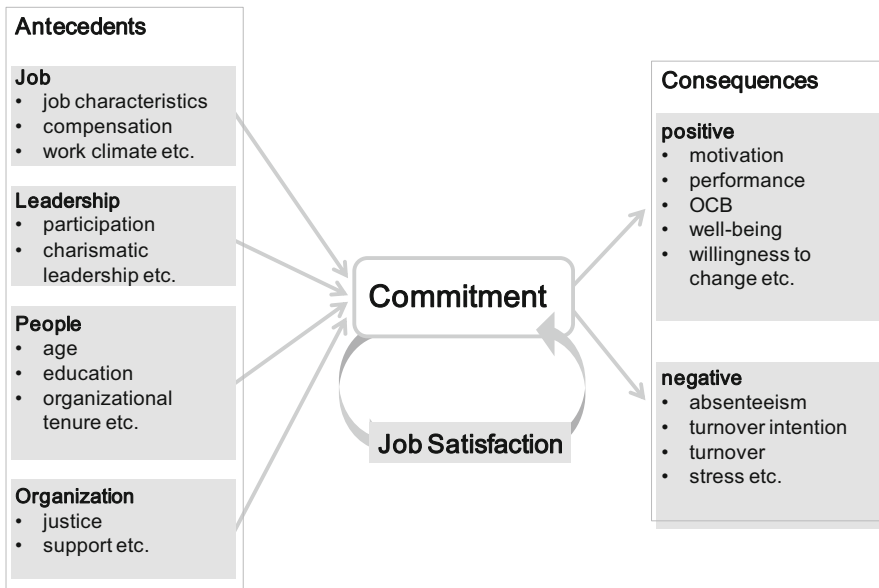


Fig. 11.1 A conceptual framework of antecedents, correlates, and consequences of commitment (Felfe 2008; adapted by the authors)

Job Characteristics Regarding job characteristics, an obvious connection of commitment and work objects has been established (Mathieu and Zajac 1990). Employees with more varied and complex tasks have proven to be more committed.

Attributes of Leadership An analysis concerning the relationship of management and commitment has shown that a **charismatic, transformational leadership** influencing employees' values and fostering **intrinsic motivation** by formulating goals and visions also correlates strongly with the employees' commitment (Meyer et al. 2002; Bass 1985).

Factors Influencing Identification

According to Tyler and Blader (2000), the extent to which an employee identifies with the organization – unlike commitment – depends on the **corporation's identity, reputation, and profile** compared other organizations.

- ▶ Employees identify more strongly with organizations that have a distinct, positive corporate identity, such as a good brand reputation. In turn, highly committed employees influence – not only due to their lower labor turnover – the organization's identity and behavior.

According to Scholz (2000) **corporate identity** is composed of coherent elements of **corporate culture, corporate design, corporate behavior, and corporate image**. The elementary factors influencing the identification of organizational members are evident in this.

11.2.3 The Relationship of Commitment and Job Satisfaction

Job satisfaction is defined as co-workers' attitude towards their work in general and towards single aspects of work in particular, e.g. working conditions, work objects, colleagues, or superiors. The main difference of commitment and job satisfaction is that job satisfaction is the result of a quick evaluation of one's current working situation, whereas commitment as well as identification describe a relationship that is more long-term and stable. In this way, employees can **lack job satisfaction**, for example during a change of management, but still be highly committed. There are, however, a lot of shared characteristics. Cooper-Hakim and Viswesvaran (2005) determined, for example, a connection between job satisfaction and affective commitment that can be explained by the important role the **emotional evaluation of one's working situation** plays in both concepts.

Fig. 11.2 Causal order of commitment and job satisfaction (Felfe 2008; adapted by the authors)



- Since there are conflicting theories regarding the effective direction, job satisfaction is referred to as a correlate of commitment (Fig. 11.2). It can either be an antecedent or a consequence of commitment. The common ground is that both satisfied and committed employees work hard for their projects (Felfe 2008).

11.2.4 The Effects of Commitment and Identification

The effects of the various manifestations of **commitment** can be divided into **positive effects**, such as increased performance and ability to work under pressure, and the absence of undesirable effects, such as fewer sick days or lower labor turnover. But what effect does **commitment** really have on **work performance** in projects? To answer this question, the link between commitment and a lot of other variables has to be considered, e.g. the method used to measure work performance, the **complexity** of the work tasks in question, and the various tested **occupational groups**. Additionally, work performance is determined greatly by factors that are beyond the employee's control, e.g. the working conditions or the project's budget. Nonetheless, a connection between performance and affective commitment has been demonstrated; even though its effects are relatively moderate (e.g., Riketta 2002). This also applies to the link between affective commitment and absenteeism, which is extremely costly, and a major factor of success in projects especially (Meyer et al. 2002).

The results are clearer regarding the individual employee's **intention to leave or labor turnover** in general (Cooper and Viswesvaran 2005). The hypothesis that highly committed employees are more willing to tolerate inconvenience, stress, or frustration has been verified. These results are insofar significant as even the **employees' intention to leave** can have drastic consequences for a project, e.g. lack of engagement, work to rule, or know-how theft, even when an actual resignation does not occur.

Mathieu and Zajac (1990) also describe a distinct connection between **commitment** and how one experiences **stress**, i.e. requirements that are accompanied by unpleasant and negative feelings. Furthermore, they proved that **major factors for a project's success**, such as a pleasant working climate, voluntary engagement, or job satisfaction, are closely related to how strongly project members can identify with the project and feel themselves committed to it. Especially team members who feel very committed to the project show an increase in desirable team-related behaviors, like an exceptional willingness to perform or an altruistic attitude.

- ▶ For project work, it is relevant to know that commitment to and identification with the team are generally higher than with the organization in general (Ricketta and van Dick 2005).

Despite the complexity of all commitment and identification-related effects, the following could be established for the various dimensions of commitment. There is a positive relationship between **affective commitment** and desired workplace behavior, e.g. attendance, voluntary engagement, and performance. Concerning **normative commitment**, this relation is less distinctive, and for **calculative commitment**, it is negligible or even negative (Meyer et al. 2006).

11.2.5 Measuring Commitment and Identification

When preparing for important projects, using dedicated surveys can be particularly useful.

Despite alternatives being available, the **OCQ** by Mowday et al. (1979) is still the most commonly used questionnaire concerning affective commitment (Fig. 11.3). Based on fifteen items – or nine in the short version – the respondents express their acceptance and identification with goals and values, their specific engagement, and their wish for further affiliation with the organization. The OCQ works due to its brevity well as the complementary index established in the course of extensive employee surveys.

The following points of criticism have inspired Allen and Meyer (1990) to develop a multidimensional instrument to measure employees' commitment. The OCQ measures affective commitment primarily; in parts, it measures the constructs it is meant to predict (e.g. the intention to leave the company), and the delineation to job satisfaction is not distinct enough.

Using this questionnaire, data describing affective, normative, and calculative commitment can be collected in more detail on the basis of eight items.

In Fig. 11.4, the authors adjusted the items regarding affective commitment to fit a project or team situation. It is particularly useful for a field analysis during the preliminary stages of team or organizational development.

To **measure social identification** as expressed in holistic commitment and accompanied by the joy and pride of being part of a project team, the questionnaire developed by Mael and Ashforth (1992) offers an effective instrument. It, too, has been changed by the authors to fit a **project or team scenario** (Fig. 11.5). This questionnaire can be used in the course of individual assessments for team members and prior to HR development measures.

Please indicate the degree of your agreement or disagreement with each statement.

		Disagree strongly	Disagree moderately	Disagree partially	Neither disagree nor agree	Agree partially	Agree moderately	Agree strongly
1	I am willing to put in a great deal of effort beyond that normally expected in order to help this organization be successful.	①	②	③	④	⑤	⑥	⑦
2	I talk up this organization to my friends as a great organization to work for.	①	②	③	④	⑤	⑥	⑦
3	I feel very little loyalty to this organization. (R)	①	②	③	④	⑤	⑥	⑦
4	I would accept almost any type of job assignment in order to keep working for this organization.	①	②	③	④	⑤	⑥	⑦
5	I find that my values and the organization's values are very similar.	①	②	③	④	⑤	⑥	⑦
6	I am proud to tell others that I am part of this organization.	①	②	③	④	⑤	⑥	⑦
7	I could just as well be working for a different organization as long as the type of work was similar. (R)	①	②	③	④	⑤	⑥	⑦
8	This organization really inspires the very best in me the way of job performance.	①	②	③	④	⑤	⑥	⑦
9	It would take very little change in my present circumstances to cause me to leave this organization. (R)	①	②	③	④	⑤	⑥	⑦
10	I am extremely glad that I chose this organization to work for over others I was considering at the time I joined.	①	②	③	④	⑤	⑥	⑦
11	There's not too much to be gained by sticking with this organization indefinitely. (R)	①	②	③	④	⑤	⑥	⑦
12	Often, I find it difficult to agree with this organization's policies on important matters relating to its employees. (R)	①	②	③	④	⑤	⑥	⑦
13	I really care about the fate of this organization.	①	②	③	④	⑤	⑥	⑦
14	For me, this is the best of all possible organizations for which to work.	①	②	③	④	⑤	⑥	⑦
15	Deciding to work for this organization was a definite mistake on my part. (R)	①	②	③	④	⑤	⑥	⑦

Note: R = reverse coded.

Fig. 11.3 Organizational Commitment Questionnaire (OCQ) (Mowday et al. 1979)

Please indicate the degree of your agreement or disagreement with each statement.

		Disagree strongly	Disagree moderately	Disagree partially	Neither disagree nor agree	Agree partially	Agree moderately	Agree strongly
1	I would be very happy to spend the rest of my career with this project team.	①	②	③	④	⑤	⑥	⑦
2	I enjoy discussing my project team with people outside it.	①	②	③	④	⑤	⑥	⑦
3	I really feel as if this project team's problems are my own.	①	②	③	④	⑤	⑥	⑦
4	I think that I could easily become as attached to another project team as I am to this one. (R)	①	②	③	④	⑤	⑥	⑦
5	I do not feel like 'part of the family' at my project team. (R)	①	②	③	④	⑤	⑥	⑦
6	I do not feel 'emotionally attached' to this project team. (R)	①	②	③	④	⑤	⑥	⑦
7	This project team has a great deal of personal meaning for me.	①	②	③	④	⑤	⑥	⑦
8	I do not feel a strong sense of belonging to my project team. (R)	①	②	③	④	⑤	⑥	⑦

Note: R = reverse coded.

Fig. 11.4 Scale for measuring affective commitment with the project team (Allen and Meyer 1990; adapted by the authors)

Please indicate the degree of your agreement or disagreement with each statement.

		Disagree Strongly	Disagree Moderately	Disagree Partially	Neither disagree nor agree	Agree Partially	Agree Moderately	Agree Strongly
1	When someone criticizes my project team, it feels like a personal insult.	①	②	③	④	⑤	⑥	⑦
2	I am very interested in what others think about my project team.	①	②	③	④	⑤	⑥	⑦
3	When I talk about my project team, I usually say 'we' rather than 'they'.	①	②	③	④	⑤	⑥	⑦
4	My project team's successes are my successes.	①	②	③	④	⑤	⑥	⑦
5	When someone praises my project team, it feels like a personal compliment.	①	②	③	④	⑤	⑥	⑦
6	If a story in the media criticized my project team, I would feel embarrassed.	①	②	③	④	⑤	⑥	⑦

Fig. 11.5 Scale for measuring social identification (Mael and Ashforth 1992; adapted by the authors)

11.3 Footholds for Improvement: Influencing Commitment and Identification

Work in projects is often accompanied by challenging innovations and transformations (Chap. 2, Schneider, Wastian & Kronenberg). The employees' commitment creates the conditions in which it is possible to cope with such challenges.

- ▶ Since the commitment of strategically important co-workers is vital for a project's success, project management emphasizes the active formation of commitment.

11.3.1 Specific Retention Management

The purpose of **retention management** on a strategic level is to facilitate employees' affective commitment, but also to eliminate risks that are counterproductive.

Retention management can be split into a **strategic** and **operative** level. **Strategic retention management** follows the **business strategy** and creates the organizational and instrumental requirements to increase employees' commitment (Chap. 7, Moser, Galais, & Byler).

This Includes (According to Felfe 2008)

1. Career and development opportunities
2. Technical equipment

(continued)

3. Compensation
4. The overall corporate climate
5. Being aware of the so-called psychological contracts, which refer to unwritten arrangements between the employee and the organization.
6. The stability and obligation of economic and social benefits and requirements lead to the employee's sense of obligation to perform adequately

11.3.2 Specific Retention Management on an Operative Level

Retention management on an operative level should begin with the **factors that correlate strongly with employees' commitment** (Fig. 11.1). This includes the **variety of work objects**, the **scope of action** as well as **challenging individual tasks** (Felfe 2008). Commitment correlates negatively with growing role ambiguity and conflicting roles (Meyer et al. 2002; Chap. 4, Streich & Brennholt). Another starting point for retention management in projects is **leadership** (Chap. 12, Wegge & Schmidt). Encouraging **self-competence**, so-called "**psychological empowerment**" can affect employees' self-determination and autonomy positively. Employees are enabled to take control of their issues and handle them on their own responsibility.

- ▶ Employees' commitment can also be increased by delayering the hierarchy, by participation in decision-making, by a positive, appreciative team culture, self-evaluation, acceptance of responsibility, or development opportunities (Lok et al. 2005).

In Summary, We Can Follow Mathieu and Zajac (1990) in Stating That There Are Three Different Levels When Designing Operational Project Work

1. **Work objects:** These should include diverse tasks and challenges. The work should satisfy intrinsic needs, and the employee's scope of action should be as large as possible.
2. **Relationships:** The project manager should be mindful of transparent and exhaustive communication, incorporate the team in decision making, provide appropriate guidance, and support and concern himself or herself with the employees' well-being (Chap. 9, Lyubovnikova & West).
3. **Roles:** The team members' roles should be defined clearly and without contradictions, since role ambiguity and role conflicts can have a negative effect on commitment.

11.3.3 Systematic Retention Management via Project Managers' Leadership

Research on **transformational or charismatic leadership** (Bass and Avolio 1994) also encourages a project management style that

- influences people by providing a role model and gaining trust (idealized influence)
- motivates people with inspirational visions (inspirational motivation)
- fosters creative and independent thinking (intellectual stimulation) and shows empathy and support for individual employees (individualized consideration).

The employees accept the project manager as a **role model**, especially when the manager puts aside his or her own interests on other people's behalf, shares risks, sets an example of high motivation, and adjusts his or her actions to match moral and ethical principles.

Before any specific measures to increase the employee's commitment and identification, a **field analysis** needs to clarify whether these measures should be focused on the organization as a whole or the individual project. In this sense, explicitly encouraging identification and commitment within a single project team can play a major part in diminishing employees' resistance to change and in preventing demotivation, especially during **business mergers and acquisitions**. Then again, one should be aware of the fact that a **very high sense of identification with a project team can be counterproductive** in terms of the company's goals when the **standards and values** of the group and the organization at large come into conflict. High commitment towards the project team can lead to **departmentalized thinking** towards other organizational units, but also encourages "covering" for low-performing team members (Riketta and van Dick 2005). To prevent this, criteria for performance valuation should be developed with the team that cover the individual's as well as the team's accomplishments and give due reference to the project's as well as the entire corporation's goals.

11.3.4 The "Dark Side" of Commitment and Identification

Which difficulties can arise out of commitment and identification? There are basically **four sources of problems** (Moser 1996):

Sources of Problems Arising from Commitment and Identification (According to Moser 1996)

- From a corporate and an individual or even social perspective, it can be undesirable for commitment and identification to prevent labor turnover.

(continued)

- Commitment and identification can have different foci (like the organization, project team, or individual careers). When the respective goals, values, or norms conflict with each other, a competitive situation can arise, which can, in turn, lead to a conflict in loyalties.
- Excessive commitment and identification can lead to fanaticism, unethical behavior, or self-exploitation.
- Commitment and Identification can also be negative, when the organization's goals, norms, or values themselves are worthy of condemnation (e.g., organized crime, corporate crime).

Fluctuation can be desirable from an organizational point of view for financial and strategic reasons. Organizations want to part with **inefficient employees** to ensure their competitiveness. A long-lasting bond with employees who are not qualified to fulfill their tasks would have an adverse effect.

Moreover, fluctuation is the basis for the specific **promotion of high-potential** young professionals and allows the organization to acquire new knowledge, to renew itself by injecting “fresh blood” from outside, and in turn to increase its ability to be innovative and flexible.

A **long-lasting bond** can also be **disadvantageous for employees**. They miss development or career opportunities, and they risk becoming **less qualified** when they stay for too long in a single position (Moser 1996). Essentially, loyalty and commitment of employees have ceased to ensure lifelong employment with one firm. The psychological contract, meaning the implicit **expectations of both employee and employer**, has changed greatly in recent years. Even though work relations are often not conceptualized for a permanent bond, organizations expect above-average commitment and identification with the organization's goals and values. Considering the diverging interests of organizations and employees, one has to ask the key question of whether an “emotionless” transactional relationship is more advantageous for employees than emotional commitment, since they can leave the organization more easily if there are disparities in the stimulus-contribution ratio (Moser 1996).

An additional **risk** of commitment and identification are **loyalty conflicts** due to an employee's commitment to **various objects of commitment**. A strong commitment towards the project team can lead people, for example, to divert resources for the project, which conflicts with their loyalty toward the organization as a whole, requiring increased cost awareness. However, Beauvais et al. (1991) could establish that there can also be **dual commitment**, e.g. towards a trade union and the business, so both parties can profit from this commitment.

These characteristic features of **over-commitment** can cause employees to support **ethically questionable behavior** or commit crimes in the service of their organization or project out of blind obedience or fanaticism.

Furthermore, **groupthink**, which affects team performance **negatively** – for example through wrong decisions caused by self-censorship or illusions of

invulnerability (Chap. 3, Brodbeck & Guillaume) – can be encouraged by high commitment (Felfe 2008). Lastly, rivalry between project teams with highly committed team members can affect the overall organization's goals negatively when a lack of cooperativeness between them facilitates inefficiencies.

- ▶ It is the project manager's function to be sensitive to misdirected commitment and handle high commitment responsibly.

11.4 Summary

Working in projects requires employees to perform considerably more than they are required to by their contracts. Employees should be willing to show exceptional motivation and cope with extreme workloads during times of high pressure. Loyalty is also a major factor in projects, since the individual and group performance can often not be evaluated reliably.

Even though the effects of commitment and identification are very complex, a relationship between commitment and desirable behavior, for example higher motivation, greater ability to work under pressure, conscientiousness or altruistic behavior, could be established. More recent studies prove that affective commitment is a more important factor for a project's success than calculative or normative commitment (e.g. Cooper-Hakim and Viswesvaran 2005).

Retention management means to directly influence a project's affective commitment and identification with the project. To manage the project member's commitment, a field analysis would seem highly advisable. Initially, there has to be a survey of the project team members' commitment. For measuring commitment, one can use the multidimensional approach of Allen and Meyer (1990), including scales for affective, normative, and calculative commitment (Fig. 11.3). The level of social identification can be measured by utilizing Mael and Ashforth's (1992) questionnaire (Fig. 11.4). The results of this diagnosis of the current situation are presented to the project team and analyzed in a guided group discussion. Its facilitator should ideally be an unbiased external expert. If commitment is high, measures to secure the existent strengths are advised; if the level of commitment is unsatisfactory, the project team needs to try and get to the bottom of these problems. Serious commitment problems should be used as an opportunity to question central conditions of successful project work, e.g. the team leader's aptitude or ability of the team to cope with their assigned tasks.

Essential starting points for increasing employees' commitment are **work objects**, the **scope of action for the team** as well as demanding **specific tasks**. **Role ambiguity** and **conflicting roles** among team members should be avoided. Project managers should be aware of their function as role models, strengthen their co-worker's self-competence, allow for self-determination and participation, and have an appreciative and respectful relationship with the co-workers. Furthermore,

it is the project managers' function to be sensitive to the dangers of high commitment. Calculative commitment in particular can prevent the tacitly required labor turnover, which can affect the team's performance and innovative capabilities negatively. A competitive situation due to different foci of commitment can lead to **loyalty conflicts** and **performance losses** or even **facilitate deviant behavior**.

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Jürgen Wegge and Klaus-Helmut Schmidt

Abstract

In their work, project leaders need to take into account several distinctive features that are typical for project work. This chapter considers three specific **problem areas** in particular by taking a look at the following questions:

- How do I agree upon effective **performance goals** for all project members?
- How can I manage complex project tasks even under severe time pressure?
- How can I increase the **goal commitment** of people whose individual skills and weaknesses I barely know?

The recommendations given in this context are based on practical experience as well as scientific insights, gained in more recent research on how goals are set when leading employees.

12.1 The Challenges for Project Leaders

This chapter deals with project leaders in their function as leaders of people (executive). We will begin by defining the meaning of leadership. In a second step, we will introduce a general model to describe which different aspects are

J. Wegge (✉)

TU Dresden, Work- and Organizational Psychology, Dresden, Germany
e-mail: wegge@psychologie.tu-dresden.de

K.-H. Schmidt

Leibniz-Research Centre for Working Environment and Human Factors,
Dortmund, Germany
e-mail: schmidtkh@ifado.de

especially vital for success when **leading** project groups. Finally, we will try to provide answers to the three questions posited here.

12.1.1 What Is leadership?

Executives have to fulfill a variety of **tasks**. These are (among others):

- making and enforcing decisions,
- planning and agreeing upon approaches and procedures,
- motivating and instructing employees,
- coordinating the progress of work,
- forwarding and assessing information,
- settling conflicts and promoting cohesion among employees,
- agreeing upon goals and giving feedback

At first sight, these tasks may present a rather incoherent picture. When we take a closer look, however, it becomes apparent that they clearly serve the common purpose of the **goal oriented controlling of employees' behavior** in order to reach the **company's higher goals** (Wegge and Rosenstiel 2007). The answer to the question as to what exactly needs to be controlled by the executive, however, depends on the form of group work that the company has chosen (Wegge 2004; Tannenbaum et al. 2012). In the following, we will focus on work in project teams.

12.1.2 Central Success Factors in Project Management

There are several books and review papers that try to summarize the state of research on the essential **success factors** in project-based teamwork (e.g. English and Fisch 1999; Lechler 1997; Zeuschel and Stumpf 2003; cf. also to the later chapters of this volume). In order to visualize the most important factors, we can draw on the model developed by Lechler (1997) and Lechler and Gemünden (1998) (Fig. 12.1).

This model is based on the evaluation of 44 studies and a total of 5,760 different project groups, 1,800 of which could be termed definitely successful and about 1,200 that can be regarded as failures. The projects in question had very different objects (e.g. engineering and general construction, development projects, or software projects). Their **success was recorded** with diverse indicators (e.g. compliance with deadlines, economic success, satisfaction of project members) corresponding to the respective project assignments. Using this data, the authors specified a set of key factors (e.g. clear definition of goals, intensive and planned communication, the support and engagement of top-level management) that can promote the success of projects significantly. Although good **communication** and the use of instruments for planning and controlling (e.g. network plans, milestone plans, or special project management software) have quite positive effects, the **most significant influence on the effectiveness of project work**

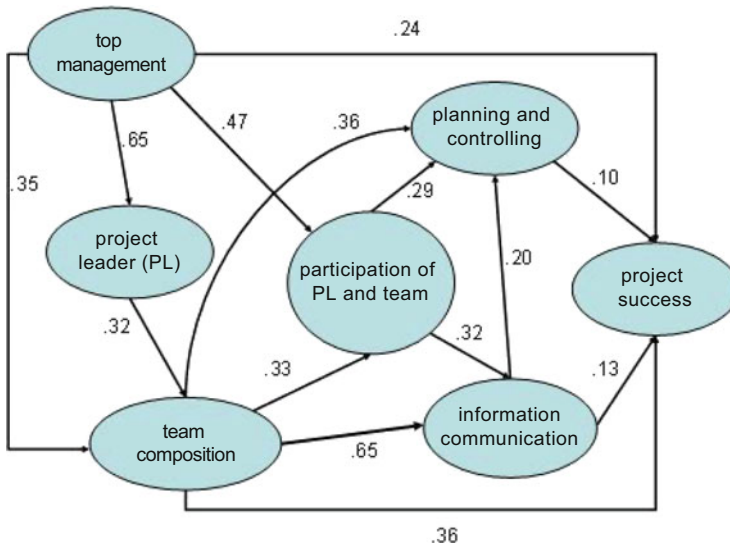


Fig. 12.1 Empirical path diagram for the determinants of project success (According to Lechler and Gemünden 1998)

emanates from the parties involved: the top management level, the project team, and (albeit at a lower scale) also the project leader.

- **Top management** needs to support the project continually and should have a concrete interest invested in its success. Moreover, it should grant the project leader substantial autonomy (formal competences).
- **The project leader** should have sufficient authority to make decisions and issues instructions, especially when forming his or her team, choosing the appropriate style of leadership, and assigning tasks to group members.
- **The team** as such needs task-relevant knowledge and sufficient skills in particular to regulate and control their own task-relevant work (cf. also English and Fisch 1999).

Interestingly, the studies summarized by Cohen and Bailey (1997) suggest that a high level of control (**autonomy**) for project members is not beneficial in terms of the projects' eventual success. The causes for these observations, however, could not yet be validated. It could be, for example, that too much autonomy for the members of project groups easily leads group members to pursue their individual interests predominantly rather than the team's shared goals.

- ▶ For the overall success of a project, the project leader should be provided with a higher degree of authority (power) than the project members.

Although many more approaches to the **management of project groups** are discussed in the relevant literature (cf. e.g. Gemünden and Lechler 1997; Lechler

1997), the variables shown in Fig. 12.1 have consistently been found to promote performance reliably. Accordingly, they should all be considered when using project work in organizations.

12.1.3 Specific Risks When Leading Project Teams

Which problems will a project leader typically encounter in his or her role? The following case study aims to illustrate the typical issues faced by project managers everywhere.

Example

The Project

The project chosen to illustrate these concerns deals with the introduction of **video conferences** for a spatially distributed project group (general construction) at an international company. The corporation wants to promote planning and agreement processes within the project team through the use of video conferences, as the team works from three different locations. The team's structure is very heterogeneous, as representatives of different professions (IT workers, design engineers, constructors etc.) are involved, each with a different level of experience with video conferences. The new system promises to reduce **travelling costs** significantly (once the project has been launched, every second meeting is to be replaced by video conferences) and accelerate the project's work. As the company has not used video conferences thus far, an experienced IT employee is charged with prepping the three locations. The project leader has been given a timeframe of three months and decent financial means for acquiring the new conferencing facilities.

The Project Leader's Plan

As the project task does not give any details about the facilities to be acquired or their specific utilization, the experienced project leader prepares a specifications sheet with all of the detailed technological requirements. Before buying the facilities, he wants to discuss these requirements with the three locations and their employees. His project team is made up of three representatives from each location: two design engineers and a plant constructor, all of whom are going to participate in the assignment. As the project leader knows that a personal meeting at the beginning of a project is of crucial importance, he arranges a meeting at the company's headquarters to discuss the details without any time pressure.

Specific Leadership Attempts

A timeframe of one afternoon has been set aside for this **kick-off meeting**. The representatives of the three locations meet and the project leader explains his specification sheet. The atmosphere is very matter-of-fact, and communication runs smoothly. The project team members accept the technical proposals of their project leader. The following project **milestones** are defined: Acquisition of the

three facilities, with a test conference after the acquisition. In order to conclude the project, the new conferencing facilities are to be launched officially, with the executive board taking part in the ceremony. Further meetings are only planned should problems arise. The project leader is available for the team whenever it is necessary.

The test conference is conducted 10 weeks later, i.e. 2 weeks before the official induction of the facilities. Unfortunately, no audio connection can be established with location B, so that an additional mobile connection has to be set up. When testing the facilities, location C finds that it lacks a document camera, which is used to display large-scale construction design sketches. This angers the project leader slightly, who thinks that this could have been requested earlier. He instructs the constructor at location C directly to install such a camera post-haste, not least because of the **time pressure**. The audio problem is solved by the end of the video conference. A cable had been connected wrongly, because the technical assistant who is supposed to maintain the facilities at location B is sick on the day of the test. The project leader is relieved and thanks all participants for the test.

A Bitter Ending

On the day of the official induction, everybody is curious about the new technology. At first, the technical connection between the three locations is established properly. However, the project leader notices that the new document camera at location C is still missing. The constructor charged with the acquisition could not fulfill this task because of other projects. By way of making his apologies, he also admits that he does not know much about such cameras and was therefore unsure as to which model to buy. The first decisions therefore need to be postponed. All of a sudden, the video connection with location A malfunctions. Despite immediate attempts by the team, the problem cannot be solved. As the employees at location A think that they cannot be heard any more, they start criticizing the project leader aloud. Among other things, they claim that it was no wonder that the technology breaks down as no training prepared them for such events. The project leader had failed to schedule enough testing for such incidents. Had he thought about one or two **feedback** phases, this surely would not have happened. The participants at location A are heard to say that people at the headquarters are so arrogant that they do not even master the simplest and most basic rules of successful project management. Facing the technical as well as organizational problems, top management is not convinced of the benefits of the new conferencing facilities. The project is terminated and the project leader has to live with the stain of allegedly **poor leadership abilities**.

As this case study illustrates, several specific **problem areas** are known to arise for many project leaders.

Regarding the personal leadership of project teams, the following aspects need to be emphasized:

1. Even in projects with a detailed specification sheet drawn up at the beginning of the project, there still are often unclear sub-goals or performance criteria, which e.g. stand in the way of agreeing on specific goals or communicating feedback
2. Complex tasks need to be completed with the division of labor, while laboring under considerable time and cost pressure.
3. Often, people who do not know each other and who do not have any experience of working together have to cooperate.
4. The often interdisciplinary nature of project tasks demands very heterogeneous project groups.
5. Project leaders usually do not have any disciplinary authority over project team members, which can undermine the leader's power.

The project leader should consider these characteristics when **organizing his leadership**. In the following, we will focus especially on the problems of unclear project goals, **time pressure** in connection to complex project tasks, and the problem of project leaders **losing influence** as a consequence of their often limited power. Another problem addressed here is the project leader's ignorance of the skills and performance potential of the project group members, which is caused by the temporal limitation of the project work. In order to analyze these problems and find possible solutions, we refer to **Goal Setting Theory** (Locke and Latham 2002) at several points. This theory has laid the foundations for the popular concept of "performance management-by-objectives", which can also have performance-enhancing effects in the leadership of project groups. To explain this, we will summarize the empirically reliable assumptions of the theory before the three typical problem areas discussed here are examined further from the perspective of Goal Setting Theory.

12.2 Background and Psychological Relevance

As has been known for a long time from research on Goal Setting Theory, occupational **performance** is determined to a high degree by **goals** (Locke and Latham 2002, 2006). The strongest performance effects derive from specific, challenging, and difficult goals that specify the concrete result to be attained by people's efforts and behavior. Agreeing upon specific and challenging goals therefore represents an effective instrument for leadership, influencing employees in how they allocate their individual resources of time and energy to the various tasks and activities at stake (Schmidt and Kleinbeck 2006).

- ▶ Agreeing upon and pursuing specific, challenging goals results in higher or better performance than pursuing vague, unspecific, or easily attainable goals.

These **performance effects of goals** are verifiable in a variety of situations. They can be observed in single persons as well as work groups (Kleingeld et al. 2011), in the field and in lab studies, in diverse types of tasks, and in people from many different cultural backgrounds. However, there are also significant differences in the strength of the observed goal-performance relationships. These differences depend on a number of **limiting conditions** which are of crucial importance for practical leadership (Wegge & Schmidt 2004).

Checklist. Accordingly, Challenging and Specific Goals Develop the Highest Performance Effects Possible if

- the task-related skills of persons are developed to a high level
- goals are matched with individual skills and are perceived as attainable
- people show a strong belief in their own proficiency
- there is a high degree of commitment to the goal
- tasks are not too complex
- there is sufficient time for the development, testing, and assessment of suitable processing strategies in **complex tasks** and
- feedback on results deliver additional information on progress in approaching or attaining a goal

This creates certain **requirements for executives working as project leaders**:

- Project leaders need to assess their employees' belief in their own proficiency and their task-related skills at the beginning of project work as precisely as possible.
- They need to collect information on personal and situational factors that influence goal commitment. This information should then be used to increase goal commitment in individual project members (Sects. 12.2.3 and 12.3.3).
- The executive also needs to be able to assess the specific work demands of employees. It is especially important to estimate the complexity of tasks realistically.
- Finally, project leaders need to provide feedback to boost performance throughout the entire course of the project.

12.2.1 The Problem of Unclear Project and Performance Goals

Applying Goal Setting Theory to project group work can be a challenge. Although the top-level **project task** is often clearly defined (e.g. acquiring a video conference facility at three branches of the company), the means for transferring this task into

result or behavior-oriented goals are not obvious or given. This applies in particular to **innovative project tasks** in the areas of research and development (Gebert 2004). Thus, there is often only a more or less generic performance or goal corridor to be achieved in many innovative projects. While the starting conditions are known, the actual behavior leading to the intended goal remains unclear. As the case study shows, this impedes the productive organization of work processes in project groups. According to Hacker, a “hybrid” approach is sensible in such cases (2004, 2010).

A Hybrid Approach for the Step-by-Step Specification of Goals

1. In a first step, individual approaches are considered on a hypothetical basis and in terms of their consequences. In doing so, the first contours of possible sub-goals arise, which limit the complexity of the problem.
2. These hypothetical approaches go through a corrective process in the form of a sequence of feedback loops. Through such **interconnected reflective phases**, the corrective process leads to a step-by-step improvement of the quality of the eventual solution.
3. When generating and cross-checking hypotheses, previous knowledge is often accessed and assessed as to its applicability for the current problem.
4. In a next step, the hypothetical approaches are examined as to whether they can be connected. Afterwards, their possible contributions to the still vague final solution are assessed. By discarding useless approaches and optimizing promising ones, an outline of a superordinate task or aim emerges slowly. Against the background of this outline, successful approaches for solving the problem or task become clearer in the form of sub-goals.
5. The individual sub-goals then suggest further, more concrete steps. In case of a good fit, they are used as action plans on a superordinate level in order to pursue the main task.

These features of a largely open project work without clearly specified sub-goals suggest certain behavioral patterns on the side of project leadership that can support the project group. These are outlined in more detail in Sect. 12.3.1. The case study presented at the beginning also reveals the fact that ignoring these aspects might endanger the success of the entire project from the very beginning.

12.2.2 The Problem of Complex Tasks and Time Pressure

Project work often means that complex tasks need to be accomplished within a limited timeframe. Numerous studies on Goal Setting Theory confirm that the **performance effects of challenging, specific goals** decrease significantly with

increasing **task complexity** (Wood et al. 1987). Moreover, some research results show that goals do not unfold their performance-promoting effects immediately in project work, but rather with a certain temporal delay. In the context of complex or innovative tasks, difficult and specific performance goals can actually turn out to decrease performance. These performance-decreasing effects emerge especially when goals put people under too much time pressure.

How can these complexity-dependent differences in performance effects be explained? In the context of simple tasks, the behavioral patterns that help attain a goal are often obvious, as the structure of the task in question suggests them immediately. In this context, increases in performance should already be possible by investing more energy into focusing on essential tasks features and remaining persistent. These mechanisms can easily be activated through goals, with correspondingly strong effects on performance.

- ▶ Complex project tasks require time for the development and testing of suitable processing strategies. Thus, the project leader needs to organize an adequate timeframe (conditions).

As a consequence of the numerous unique **degrees of freedom** and options inherent in complex tasks, the behavioral means to pursue a goal are much less immediately determined by the structure of the task itself. The possible strategies for processing such tasks that result from these degrees of freedom have to be discovered by experience and need to be developed first. To begin with, these strategies need to be identified, tested, and assessed with regard to their performance efficiency. If the temporal preconditions needed for this are not given or too restricted by time pressure, **suboptimal strategies** might be chosen and applied. However, if there is enough temporal autonomy for testing and assessing strategies, then **specific goals** can be assumed to facilitate the selection of suitable processing strategies, as they make transparent the exact demands to be met. Unspecific or vague goals, on the other hand, provide ambiguous criteria for assessing and choosing strategies. The resulting consequences for the role of the project leader as an executive and for how best to deal with time pressure on the basis of this knowledge is outlined in Sect. 12.3.2. Not to consider these consequences can impede project group processes significantly – as shown by the case study. In that case, the project leader did not have any information about the fact that the constructor responsible for acquiring the document camera was not able to fulfill his task as a consequence of being caught up in other duties.

12.2.3 The Problem of Ambiguous Positions of Power and Lack of Cooperating Experience of the Project Leader and the Group

The project leader usually does not have any disciplinary **authority** over project members. This can lead to project team members not necessarily sticking to commitments made earlier on (low goal commitment), especially when there are unprecedented difficulties within the individual work area. This is also likely to be a reason for the fact that a high degree of **autonomy for the project leader** and strong support for the project by top manager are of such crucial importance for the success of projects.

Project groups are often assembled for temporary periods of time and consist of people who do not have any common experience of cooperating with each other. Moreover, group members often differ significantly in their professional biographies and career processes. As a consequence of this and of the **lack of experience** concerning the strengths and weaknesses of individual group members, assessing their skills for the task in question may prove problematic for the project leader. This complicates both the assignment of tasks according to people's individual skills and the definition of individual performance goals corresponding with the performance potential of the project members. This entails the danger of mental overexertion or lack of stimulation for the employees in question, which in turn can impair their commitment to the project or goal. The project employees' decreasing **goal commitment** at the end of the project outlined in the case study is proof of this.

What can project leaders do in such a difficult situation in order to promote goal commitment and get to know their project members' individual skills better? How can overexertion or lack of stimulation be avoided? A general recommendation for solving these problems is to use participative leadership. Two basic lines of reasoning in favor of this recommendation can be found in **research on participation** (Wegge 2004, cf. Fig. 11.2).

The first line of reasoning focuses on the immediate emotional or **motivational effects of participating** in decisions. It is proposed (and often found) that successful personal **participation** leads to higher work satisfaction, good work morale, and trust in the executive. As employees' performance and success-related expectations can also be brought into the open in conversations about shared goals, their motivation for work increases. As a result, the decisions (measures) proposed by the executive are accepted (high goal commitment) and realized (high efforts and endurance) sooner, which is going to increase performance in many situations.

The second line of reasoning, on the other hand, focuses on the immediate **cognitive and conative effects of participation** in decisions. Personal participation leads primarily to a more intelligent use of employees' human resources (especially their knowledge and skills) as communication and coordination among all persons involved are promoted and people find it easier to comprehend the purpose of their work (role clarity). Because of these especially efficient (intelligent) decisions and action plans, performance is particularly high, which in turn results in higher work satisfaction and good morale. How to achieve participatory leadership effectively

and concretely in project group work will be outlined in more detail in the following chapters (cf. esp. Sect. 12.3.3).

12.3 Approaches for Improving Leadership in Project Teams

12.3.1 Performance Management in Project Groups with Ambiguous Behavioral Goals

The problem of insufficiently clear goals in project work described in Sect. 12.2.1 prompts the question as to how the project leader can effectively help his or her group members cope with this problem. The hybrid approach in **goal development** and specification outlined by Hacker (2004, 2010) provides valuable suggestions for answering this question. It states that the project leader should encourage employees to probe a **possible range for the goal** by applying hypotheses and gradually narrowing them down into concrete ideas for sub-goals and how they interconnect. In doing so, it should be of special significance to help group members leave behind conventional patterns of thinking and perceptions and encourage them to analyze the problem from different, even unfamiliar perspectives. The project leader should motivate group members to develop models for solving the problem, test them preemptively as to their feasibility and, where necessary, discard or modify them (cf. also Hacker 2004, 2005).

Moreover, the leader should provide knowledge and information (if available) about alternatives in terms of the goals and **options for changing the initial situation**. Above all, the project leader should encourage the group members to suggest their **own goal sketches** and discuss them in an open atmosphere. The option to participate should positively influence the success of project, especially in this phase of goal definition. Finally, the project leader should strive for a broad consensus to the agreed goals and, if necessary, assign tasks and sub-goals to certain group members.

After going through this goal finding process, the project leader and his employees can agree upon specific and challenging goals on the basis of the elaborated notions of the goals and provide **feedback** on progress to the targets. When agreeing upon goals, the possibly limiting conditions of goal setting and their performance effects described in Sect. 12.2 should also be considered.

- ▶ The project leader should limit the range for the project goal and work with the group to make it gradually more concrete, down to the assignment of tasks and sub-goals. These form the basis on which specific goals can be agreed and concrete performance feedback can be given.

12.3.2 Setting Goals for Complex Tasks Under Considerable Time Pressure

Project groups are often exposed to substantial time pressure when trying to finish their work and process complex tasks. In such cases, it may not always be possible for the project leader to provide employees with an adequate timeframe for developing, testing, and assessing effective processing strategies. However, as evidence for the Goal Setting Theory suggests, such options are of crucial importance to avoid the risk of having goals with side-effects that impede performance. As there are often “many ways of doing it” in complex tasks, the project leader’s task-related competences are needed to limit his or her employees’ degree of freedom effectively by providing advice on effective processing strategies from the very beginning. However, these competences may not always be available, prohibiting this option for coping with time pressure. In this case, it is sensible to make employees participate even more in the definition of the goals because of their more profound knowledge of the sub-goals to be mastered. In the end, a **timeframe** can be defined for the agreed goals. These allow the group to identify and choose fitting processing strategies and take into account the need for processing the project tasks quickly. A defined timeframe for the constructor working at location C in the case study could have prevented many of the subsequent problems.

Another option for processing complex tasks under time pressure lies in agreeing upon **learning goals** together with the project members, instead of using only **output-oriented goals**. Several recent examinations hint at the possibility that challenging and specific learning goals (e.g. “finding and testing “X” new strategies for processing the tasks”) are superior to conventional performance goals (e.g. “the result \times is to be achieved within two days”) (cf. e.g. Nerdinger 2004). Combinations of learning and performance goals are also conceivable. In terms of highly complex, rather unfamiliar tasks, encouraging and agreeing upon learning goals is especially advisable at the start of the work.

Finally, research on the **effects of time pressure** has shown that the relationship between time pressure and innovation or creativity can be represented with an inverted u-shaped graph (Gebert 2004, S. 234 ff; Ohly et al. 2006). In other words: A certain amount of time pressure can be beneficial, while too much or no pressure at all rather would imply low performance.

As Gebert (2004) elaborates, the positive effects of time pressure can be expected in particular when

- the time pressure is accepted by the persons involved,
- planning includes scope for creative pauses, and

- the original time pressure is prevented from creating even more time pressure by always considering the problem of excessively interlinked work.
 - ▶ In the context of processing complex tasks under time pressure, the project leader should be motivated to **keep a balance** between the need to provide employees with enough leeway to test effective work strategies and the need to not endanger the limited overall timeframe. The goal is to optimize the project work in terms of the balance between temporal and quality criteria (avoiding a one-sided maximization at the expense of the other criterion).

12.3.3 Participative Leadership for Greater Goal Commitment and Better Utilization of Project Member's Skills

Cooperative leadership can improve the work climate, employees' health (and well-being), and their productivity (Wegge et al. 2010). The question, however, as to whether fair **participation** of employees in goal setting is better, compared to conditions under which an executive simply sets performance goals in an encouraging fashion has been discussed controversially in research on goal setting in the past. However, the die has finally been cast. In a comprehensive meta-analysis covering data from a total of 83 different samples, Klein et al. (1999) examined different variables that can promote goal commitment. The results show that **participation** in goal setting leads to higher **goal commitment** ($r = .40$ on the basis of 17 samples with 2,007 persons).

This gives a final scientific backing to the assumption of many practitioners and similar statements in other leadership theories: Participation in goal setting promotes goal commitment. This leads to especially positive performance for difficult tasks.

As Wegge et al. (2007) could recently prove in their experiments, the **participative negotiation** of difficult performance goals is also a very efficient leadership strategy when using video conferences as a means of communication between executives and employees. As modern communication technology is very common in the context of project work (cf. the introductory case study), this result is not insignificant. However, there are important exceptions to this rule, which are partly based on the fact that participative processes of goal setting carry certain risks, that these efforts may fail, that they are not appreciated by everybody in the same way, and that they are less suited in the context of certain tasks (Wegge et al. 2010). More recent research on participation has moreover found that the successful use of **personal participation** is connected to **certain preconditions** within organizations. They are, among others:

- mutual trust between the parties involved
- high social competence of the executives and employees,
- presence (sharing) of reliable knowledge,

- use of clever conflict management strategies
- a strong wish for participation on both sides.

Thus, the project leader should try to establish such conditions. This can follow certain possible approaches:

- agreeing upon common rules for cooperation and respectful, fair mutual treatment
- using databases on the competences available in a team prior to its selection
- emphasizing the aim of learning from each other
- offering a “**frankly speaking round**” at project meetings
- selecting project members who value participation.

As the participative negotiation of performance goals gives employees the opportunity to set goals that are adequate for their individual skills, a case can be made for the special efficiency of combining considerable authority on the part of the project leader with participative, fair leadership during project work.

The following checklist gives an overview of the key points of this chapter.

Checklist. What Are the Key Points that You Should Look Out for?

- The project manager needs more room to maneuver than the project staff
- The best composition of the project team is an important management task
- The goal system should be gradually narrow and specified
- For complex tasks, learning goals should be promoted and negotiated
- Produce concrete goals and consensus on goals through employee participation
- Allow time scope for strategy development
- Agree on specific and challenging goals
- Collect information on what is important for achieving high commitment of actors
- Continuously provide feedback about the goal progress
- Plan and implement intermediate phases of reflection
- Moderate pressure of time is better than low or high time pressure
- Time pressure is performance enhancing if it is accepted
- Optimize criteria for the quantity and quality of performance as conflict-free as possible
- Participatory goal setting promotes goal commitment

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Silke Weisweiler, Jürgen Kuhrts, Isabell Braumandl,
and Ellen Schmid

Abstract

For many people, the opportunity to be project managers is an incentive that offers exceptional career development prospects. Going hand in hand with these new opportunities, project managers face new and very complex areas of tension and challenges that they need to master. Holistic self-management is therefore just as important for the success of a project as managing the content and technical side.

13.1 The Problem: Complex Requirements and Areas of Tension

Depending on the size and the scope of their projects, project managers are confronted with challenges and requirements that make certain self-management abilities crucial for professional success.

We will explore a case study of a project manager entrusted with a large and complex plant construction project to illustrate important challenges in projects and starting points for successful self-management.

S. Weisweiler (✉)
Ludwig-Maximilians-University Munich, Munich, Germany
e-mail: weisweiler@psy.lmu.de

J. Kuhrts
Berlin, Germany
e-mail: juergen@kuhrt.de

I. Braumandl
CoBeCe, Regensburg, Germany
e-mail: info@cobece.de

E. Schmid
Technische Universität München, TUM School of Management, Munich, Germany
e-mail: ellen.schmid@tum.de

Example

John is a qualified engineer, 52 years of age, and has spent the last 28 years with a company that produces equipment and facilities for rail traffic. Six months ago, the company was taken over by a larger corporation and the entire management of his “old” company was replaced by a generally younger group of executives. In the context of this takeover, many colleagues of John’s age opted for a severance payment and early retirement. However, John did not want to follow suit. He could not imagine a life without work or leadership responsibilities. Therefore, he remained as the single survivor of the “old guard” in the new company. He knows most departments from many of his past assignments and has built up good personal relationships with colleagues and customers over the years, particularly through his sales activities.

As part of his last job, he acquired projects for the company. John was informed that a project manager is needed for one of the bigger projects, and John’s manager asked him whether he would be interested in **leading this project**. He has 1 week to make his mind up.

John is both pleased and surprised by this offer and immediately considers it to be a very interesting option. This is, after all, his big chance to initiate another career move, which might open new professional challenges and bring other financial incentives. Moreover, he is flattered that he, among all his colleagues, has been approached for this important project.

Nevertheless, he needs to decide whether he is up for the challenge. To do so, he needs **more information**. John reads his company’s project documentation, as well as specialist literature to find out what a project manager actual needs to know and do. He talks to active project managers and scans his personal network to answer the question: Who is able to help me with the project? Based on conversations with experienced project managers, he compiles a list of questions to help him assess the situation: What do I have at my disposal? What are the pros and cons of taking over project management? He makes notes and then discusses them with his wife who has always been a very fair, but also critical partner. Furthermore, he arranges for meetings with project managers who know him well and who are able to assess his abilities. Finally, John decides to take on the challenge of leading the project.

13.1.1 Challenges, Problems, and Tensions

Managing a project means leadership applied in everyday operations. Project managers have to master **complex situations** successfully under **time and cost pressure**, with high expectations concerning their flexibility and their readiness to adapt themselves to the given situation. In most cases, the challenging circumstances that arise also cannot be predicted accurately at the time of the project’s original launch.

Kastner and Wolf (2005) describe **typical areas of problems and tensions** as well as the phenomena of today's virtual working environment:

Three Phenomena of the Virtual Working Environment (Kastner and Wolf 2005)

1. Subjectification and personal responsibility:

- Virtual jobs require personal involvement with one's individual skills portfolio and include the personal expectations that the job will fulfill individual goals and needs.

2. Networking and interdependencies:

- The self-dependent organization of work allows flexibility to organize one's work and working hours during different project phases. Simultaneously, project managers experience heteronomy as the result of their customers' expectations and their project partners' expectation of constant availability.
- Appropriate communication is an absolute requirement.

3. The dominance of objectives and time:

- Organizational structures do not guarantee a clear separation between work and leisure time
- Deadlines are directly dependent on objectives, delivery times, and milestones.
- At the same time, the responsibility for an age and resource-appropriate division of the workload lies with the affected people themselves.
- When planning the workload and time needed, a thoughtful handling of time resources and buffer times is crucial.

If projects are not successful, the most common assumption is that the project manager was not up to the task entrusted to him or her. In business, this often means the immediate dismissal of the project manager. However, the project's size and complexity, implementation time, quality of service, and interface issues should play a particularly important role in the **evaluation of the success of a project**.

- ▶ The project manager is a manager for a defined period of time, with all consequences. He is the master of the solution-focused reaction to change.

13.1.2 Critical Success Factors for Projects

Ayas (1996) mentions a total of five **success factors** that are critical for any project: the **style of leadership**, **team development**, **outsourcing** of specific parts of the project to partner companies, **personnel management**, and **support from upper management**. Depending on their role, project managers may be involved in all of these factors. Any problems that occur during everyday project operations can be dealt with by a competent display of the appropriate behavior (e.g. a leadership style adapted to the situation). These are the abilities that are commonly associated with the self-management practices of a project manager. Chen and Lee (2007) have been able to show that the leadership behavior of project managers has a lasting impact on the evaluation of their performance. The ability to make decisions and to obtain and share information is revealed to be the most important element of leadership behavior. Based on an analysis of critical incidents in the past, Kaulio (2008) has shown that management of employees is also one of the most important elements for project managers.

Leading one's first project is often seen as the **ultimate test for future line management prospects**, since this is often the first time that the new project manager has to lead and cooperate with people outside his or her normal responsibilities in the line. For many project managers, their **role at work** has absolute **priority**. This means that the balancing act of professional and private life is often biased, to the detriment of their leisure time, relationships, and family life. In a study that examined the professional and the private life of men and women in highly skilled jobs (Hoff et al. 2005), it was found that men prioritize their jobs at the level of both biographically significant and everyday actions. By contrast, women more frequently experience a sense of conflict. While men make a clear distinction between professional and personal or family goals, **women** lean towards integrating the two and thus towards conflict resolution in the sense of a **permanent balancing act** of their goals and actions.

13.1.3 What Is Self-Management?

The Seven-Phase Model and Therapy for Self-Management

The first self-management approaches originate in the clinical context. Kanfer (1999) developed a seven-phase model and therapy for self-management. It is based on the assumption that people strive for self-determination, self-responsibility, and active self-control of their lives. Their aim is to successfully overcome problems and to improve the living situation in the context of change processes, as well as to support the individual search for orientation (clarifying needs, resolving conflicts when making decisions, and leading a meaningful life). In individually tailored therapy, positive effects are achieved by learning self-management skills, such as self-observation, self-instruction, the clarification and definition of goals, self-enhancement, and self-control.

Self-Efficacy or Expectations of Competence

This view is closely associated with the social-cognitive learning theory of Bandura (1986). He created the term **self-efficacy** to refer to a person's belief in his or her own competence, i.e. the confidence in one's potential to complete one's tasks.

Self-Management, Self-Leadership, and Self-Development

Müller (2003) assumes that people are able to influence their thinking, feeling, volition, and behavior. He describes the relationship and the distinctive features of three distinct, but related psychological concepts. These are used interchangeably in everyday life, although they address different perspectives in terms of time and contents: self-management, self-leadership and self-development.

Job-Related Self-Management

In his framework for self-fulfillment in professional life, Müller (2003) defines self-management as the sum of activities through which an individual succeeds to consciously control psychological processes relevant to the job, beyond the simple accomplishment of work requirements. Job-related self-management here focuses on **independent thinking and acting** within pre-defined tasks, job contents, or performance goals.

Self-Leadership

If, in addition, a person is able to determine his or her own goals at work, this can be defined as **self-leadership**.

Self-Development

Whenever an individual person shows **ambitions** for fields of activity beyond his or her current professional area, Müller would speak of self-development. In his opinion, personally satisfying results can be achieved in the short term with effective self-management. Effective self-management can also open up medium- and longer-term career prospects. Through self-development, people can shape their professional lives in a more authentic and satisfying way. Müller (2003) describes it as a lifelong process, which leads to an enrichment of their professional and personal identity.

Self-Management: Harmony of Goals and Motives

Kehr (2004) describes self-management as the ability to **harmonize skills, goals, and motives** and to have the will to act accordingly. He sees the reason for unrealistic ambitions in discrepancies between the explicit goals (head) and the implicit motives (heart). This leads to conflicts in behavior. The ideal situation would therefore have both explicit goals and implicit motives in congruence or at least with a common intersection. In this state, an individual experiences intrinsic motivation and goals are pursued with no or only minimal efforts of volition. The motives on which these considerations are based comprise affiliation motives (the need to belong), power motives (the need to influence), and performance motives

(the need to do something well). These are founded in evolution and formed by long years of educational processes (socialization) to become useful “survival strategies”. Changing them is thus a difficult proposition. When decisions are made in the case of conflict, it is therefore more appropriate to review the chosen goals and adapt them to the given motives, than vice versa.

- ▶ Unpleasant feelings point to discrepancies between goals and motives. Therefore, appropriate attention should be given to understanding these factors.

Self-Management: Influencing Behavior

König and Kleinmann (2006) describe self-management as the **goal oriented direction of one’s own behavior**. By means of specific self-management training, people are enabled to identify, practice, and maintain goal oriented behavior. This has been shown to reduce absenteeism, increase individual sales performance, and improve people’s time management.

13.1.4 What Are Successful Self-Management Strategies?

Braun et al. (2003) examine **self-management strategies** and their influence on **life satisfaction**. In their empirical studies, they revealed the following 11 self-management strategies and confirmed a positive relationship with life satisfaction (Table 13.1). These strategies are used for diagnosis and for targeted interventions to enhance personal self-management strategies. Some of these aspects are considered in this chapter.

13.1.5 Preparing for Projects: Taking Risky Decisions

When the “potential” project manager is offered his or her role at the helm, he or she usually needs to decide at short notice whether or not to accept it, although he or she may lack important information and experiences. In this respect, the decision is fraught with risks for the project manager, the company, and the customer.

Typically, when people are asked to take such a **fundamental decision**, career goals are considered with a view to the short, medium, and long term. The project manager questions the meaning of his or her own work, the values that play a role in personal life, and how he or she could balance them with the demands of the project. If the offer is declined, the designated project manager has probably decided against a future management career at the company. By taking the decision, he or she (maybe even for the first time officially) takes a public stance on future professional career objectives.

Table 13.1 Self-management strategies according to Braun et al. (2003)

Self-management strategies	Brief description
1. Goal management/ Clarity of goals	Individuals who formulate goals systematically and check their progress are more likely to successfully realize these goals than individuals who do not define goals
2. Intention management	Individuals who formulate specific intentions (what needs to be executed by when) realize their goals more often than those who only define the goal, but do not set deadlines
3. Time management	To plan, coordinate, and complete one's assignments and tasks efficiently in professional life, and allow enough time for private life
4. Optimism	Actively controlling of one's emotions as opposed to accepting them, as well as the belief that results can be positively influenced by one's own abilities, resources, and behavior
5. Finance management	Awareness of the given financial situation and managing the budget
6. Health management	Taking care of one's health (e.g. exercise, nutrition)
7. Relations management/ Networking	Conscious focus on forming relationships for mutual benefit
8. Support management	Using the help and support available in professional life through coaching and mentoring
9. Knowledge management	Readiness to learn and the ability to use knowledge
10. Stress management	Successfully coping with stress, problems, and difficulties
11. Conflict management	Solution-focused management of conflicts

What Is the Biggest Fear?

Project managers tend to state the fear of failure as their **biggest worry**: the fear of being dismissed as the project manager and replaced by someone else. Since this demotion may be initiated internally, i.e. from within their own company, but may also be demanded externally from customers, project managers often assume negative consequences for their future career, which amplifies the fear of failure. Experienced project managers will benefit in this phase from their knowledge previously acquired, as well as from their sense for how to acquire important information to support their decision.

What Is the Greatest Incentive?

Project managers are often granted a “**special status**” within the company. A project manager may experience a higher status compared to other colleagues, for example by attending staff meetings at a senior level. This is connected with access to strategic information, trust, and new decision-making authority and powers. The company e.g. grants the project manager a company car, allows flexible working hours, or offers other monetary incentives. Moreover, many project managers experience the official announcement of their new role within the company and to outside customers as a sign of personal appreciation.

13.1.6 Implementing the Project: Mastering Complex Challenges

The essential question for many project managers during the implementation phase is: How do I manage the demands of the “magic triangle” of the pressure of costs, time, and success. This will be illustrated in the following example.

Example

John was recently appointed as project manager. In his new job, he is now formally acting as an entrepreneur for a defined period of time, with all the opportunities and consequences this entails. He knows from previous conversations and information that considerable expectations will be placed on him. The people he spoke to listed, in particular, cost discipline, revenue optimization or maximization, other unpredictable factors, risk management, change management, interface management, quality management, and claims management as relevant in his new assignment. They also mentioned the balancing act between professional and private life.

John is convinced that he is prepared for all of this, but it is hard for him to imagine what that means in **reality**. However, shortly after the project starts, John is set to experience this at first hand. He gets the impression that he needs to be available and responsive at all times, anywhere, for all partners involved in the project and for all project-related issues, problems, incidents, and events. And there are more than enough of those. He tries to avoid being surprised by emerging risks by means of a realistic risk analysis, which he updates continuously (Chap. 16, Salewski, von Rosenstiel, & Zook). He did not envision the sheer number of tasks that need to be organized in parallel and under extreme time pressure. John has the lasting feeling that he is faced on an hourly basis with some new information that requires immediate action.

He finds himself bending over backwards. Although there are schedules in place, everything seems to be happening in parallel. When he arrives at home at 8 p.m. or later, he can hardly focus on a conversation with his wife. If it were up to him, he would retreat into his shell and have some peace and quiet. There is, however, still so much to be considered for the next day. How is he going to fit everything in? Relaxing after work is no longer an option for him. The situation cannot go on like this: John has to find a solution. Other project managers have coped with such situations before him, so why not him? He needs to reassume an active role with the customer and the company and become the helmsman of the project. However, John wonders what to do and where to start to get the “chaos” under control. He has to assign **priorities** for himself and consider the costs and the benefits of each problem.

First, he wants to meet the customers and agree some fixed dates for the flow of information and communication. Otherwise, disturbances might occur and affect mutual trust negatively. And there are many “troublemakers”: the late delivery of documents, negative test reports, a lack of freedom, poor weather conditions, modifications desired by the customer, delivery problems,

development of adaptations for interfaces, quality problems. This is his top priority and everything else will be done afterwards.

John wants to strengthen mutual trust and prove that his word counts. However, as a project manager, he is faced with the limitations of his own company's abilities every day. The **organizational structure** of the company **does not meet the requirements of the project organization**. The customer asks for only one contact person for his project, namely John. Delegating such a responsible task to employees or colleagues is not an option for him. In any case, he is the one to take responsibility for mistakes that his employees make. Thus, it is better to do the most important things himself. However, he then needs to schedule additional time for consultation with internal departments and relevant structures.

Because of changing market conditions and new strategic objectives of the company ("time to market"), John is also challenged with **controlling duties in his project**. The focus of current project controlling is a critical review of the company's internal and external milestones, relevant risks, and compliance with contractual terms. John suggests appropriate solutions for problems with the customer. He wants the project to succeed, i.e. he has to find solutions. If he succeeds, he certainly has the respect, recognition, and appreciation of his clients and colleagues. Therefore, John personally controls the reporting and monitoring of the specifications, in particular as regards the state of contracts, the construction cycle, and the project cycle. Documenting the project status, project progress, and various reports are a core task for the project manager. John performs these tasks himself as well and has to consider them in his planning of times and priorities.

Project managers describe **unforeseen disturbances** as their major challenge. Kaulio (2008) characterizes them as **technical problems, personal conflicts** between project managers and project team members, or the **relationship with consultants**. Clearly, technical problems should be included in any risk analysis. How can personal conflicts be reined in? The only solution is that the project manager identifies them as soon as possible and resolves them by means of appropriate communication and leadership. Experienced project managers report that they only learned how many challenges there are long after they had actually started their projects. Moreover, difficult project situations are often associated with a feeling of **losing control**. They force the project manager to respond immediately. Performance-oriented project managers describe a feeling of tension and challenge in anticipation of how problems can be solved. One very typical feature seems to be the feeling of being in a permanent state of alert, because problems and challenges are lurking just around the corner. This constant physical and psychological tension leads them to focus all of their senses on the project.

The consequence for the project managers is that they are **unable to relax** and not able to find an end to their work, especially in later phases of the project. As a strategy to counter this, many project managers continually review potential risks in order to see early warning signs and then pass these on in a detailed, timely fashion to the appropriate strategic leaders. This is to ensure that even in the "worst" case,

the project manager will not face a common accusation: “If you had only informed me about the problem earlier, I could have helped. Now it’s too late and the damage is done!” The result of this spiraling tension is, again, that the project becomes the priority No. 1 in all areas of life.

What Is the Biggest Fear?

During coaching, project managers repeatedly describe their **fundamental concerns** as consisting in the danger of failing to satisfy the complex range of requirements and the high expectations. This is followed by a **fear of failure**, which would lead to a complex sense of devaluation of their person. Not only are they charged with their own mistakes, but also with the **total failure of the project** and consequently disqualified as leaders. At the same time, there are significant positive incentives.

What Is the Greatest Incentive?

A project manager will experience the growth of his competences through **measurable successes and the recognition** that is linked directly to project milestones and goals. Similarly, when working with partners and customers, a project manager receives personal **recognition**. Customers and external project partners often see him gratefully as their on-site “extension” into the company. When changes occur during a project, the project manager exerts significant **influence on key project targets**, such as the extension of the contract volume in the form of additional orders. This is a proven way of making projects profitable. By offering consulting services to the clients and the company, the project manager can exert influence on all contract areas and ultimately realize cross-selling opportunities that can be critical to the **financial success of his project**.

13.2 Background and Relevance from a Psychological Point of View: Important Aspects for the Successful Application of Self-Management

13.2.1 Individual Preparation for Projects: From Decision to Action

When decisions are to be made, **information** plays a particularly important role. It provides security and guidance. There are some helpful psychological models that support and facilitate the **decision making process** and that can be used when deciding whether to accept the project manager’s role or what needs to be planned. Psychological research on the links between complex problem solving processes and personalities (Hussy 1984) has shown which **factors** play a role when people are faced with **challenging problems**.

Lee-Kelley and Loong (2003) conducted a study examining the achievement of project objectives in IT-projects, which revealed that time and quality are especially critical in this respect. It also revealed that the more **self-confidence** project

managers have in their knowledge and experience of project management, the more successfully they would carry out the project.

- ▶ Having confidence in one's own competences and skills as well as enjoying challenges and having hopes for success, all play a key role for coping successfully with complex situations.

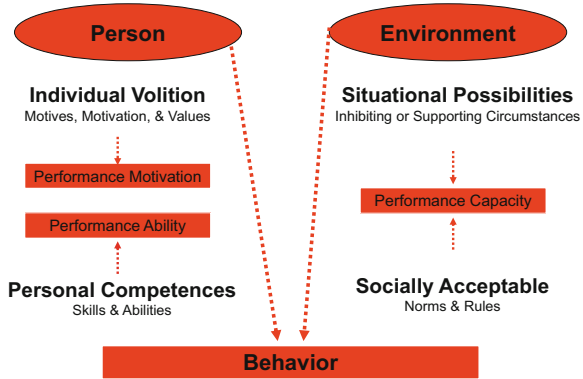
Another study in the IT area explored development processes for software applications (Morgenstern et al. 2007). The better the development and management process was planned in advance, the fewer errors were encountered during the development process. It is therefore advisable for project managers to deliver an accurate estimate of the time and amount of work at the start of a project, even if this means a higher up-front investment of time for **detailed planning and selection**.

The question is how to proceed **from contemplating** “Should I take over project management?” **to action** “Yes, I accept and will start managing the project”.

Heckhausen and Heckhausen (2008) developed a **behavior model** to bring this process into the open. In its first step, various alternatives for future behavior are acted out mentally. The advantages and disadvantages of each alternative behavior are identified and evaluated. In this phase, a lot of information from various sources is sought in order to gain a comprehensive picture of the various possible consequences and to evaluate these by oneself. The goal is to find out why a project manager assesses a decision positively or negatively and, accordingly, which subconscious motives may play a role. The focus here is clearly on the **motivation of the project manager**.

Subsequently, the decision is defined in a specific goal such as “I want to take over the project”. This is followed by specific actions and behavior, oriented towards obtaining the goal: Personal volition and controlled behavior are central in this phase. A typical feature in this phase is the targeted search for information that confirms the decision of the project manager. All **information** that could contradict the decision is **blanked out**, as it would **jeopardize the pursuit of the goal**. Psychologists call this “selective retrieval of information”. Project managers here experience any criticism of their decisions as negative and as an obstruction in the pursuit of their goals. In particular, objections by their spouses or life partners may lead to private tensions. After the action phase, the results are evaluated and appropriate conclusions are drawn.

Fig. 13.1 Decision-making processes according to behavioral conditions (von Rosenstiel 2007)



- After the goal has been achievement or more generally at the end of the project, project managers look back to assess the situation and their behavior. This leads to relevant, sometimes painful, insights and conclusions from which much can be learned. For experienced project managers, this is a successful strategy.

A particularly helpful means for personal decision-making is offered by a systematic approach according to the behavioral model (Fig. 13.1) that is used by consultants advising project managers. The model answers the question of what e.g. influences the **behavior as a project manager** and allows them to draw useful conclusions. With these insights, a central theme for behavior can be defined, as included in Sect. 13.3, and transferred to one's professional practice.

The project manager should consider two areas: on one hand, his own personal-ity and, on the other hand, the environment in which the project will take place. From this, he can conclude whether he personally has the ability and **the will** to manage the project. At the same time, he will receive important information about the available **performance opportunities**, see whether the conditions are favorable or inhibitory in nature, and learn which rules and standards are to be respected.

This approach can also be used for decisions regarding areas of responsibility and tasks for others, e.g. the project team.

13.2.2 Implementing the Project: From Reaction to Action

Not for nothing, project managers are sometimes called the “masters of the effective response to change.” Various unpredictable conditions, typical for complex project situations, can force project managers to respond.

A **basic human need**, however, is to have influence and control over one's own behavior. If situations are initially experienced as uncontrollable and thus not steerable, we make every effort to switch from reaction to action and to take control again. Self-directed behavior gives us the feeling of being the master of our

situation, to have **influence and control**. Psychological research has been concerned with this phenomenon for decades, and social psychologists (e.g., Frey and Jonas 2002) have been concerned with the question of what happens when we have the feeling of losing influence and control over a situation.

The longer the state of not being in control endures, the more we perceive the situation as threatening. There is the risk of giving up, succumbing to a “state of helplessness”. Project manager describe this as “being paralyzed, being unable to act”. If we have the feeling that we can control the situation, we do everything to find solutions for the problems we encounter (“defense against the threat of helplessness”). Afterwards, project manager describe feelings of pride and happiness and a boost to their self-esteem.

These challenges, in connection with the permanent “state of alert”, cause many project managers, particularly during their first project, to sense a **permanent feeling of tension** both physically (tight muscles, insomnia, etc.) and mentally (brooding in “infinite loops”, lack of imagination, etc.). This represents an enormous burden that can lead, over time, to a **decline in performance**. Already in 1908, Yerkes and Dodson found that a medium level of stress and activation is important in order to excel. However, if the level of activation is too high, i.e. experienced as anxiety or nervousness, there is a drop in performance. The threshold is different for each person. The level of one’s personal abilities and skills represents the upper limit.

13.3 Starting Points for Improvement: Learning from Practice and Research

13.3.1 Preparing for Projects

Projects involve complex decisions that evoke various thoughts and feelings that need to be sorted and evaluated. A **checklist** or a code of practice is advisable for this purpose. That way, a **systematic decision** is possible in which both thoughts and feelings are taken into account. This checklist should consider both the ability and volition of the individual as well as the conditions, standards, and rules of the project environment. On that basis, personal conclusions about one’s behavior can be drawn. Also, such a systematic approach has been shown to be helpful, when assigning tasks and responsibilities to project members.

As shown in the case of John, the first step should be a **self-assessment**. It increases the individuals’ self-confidence, belief in their own abilities and hope for success. In practice, more and more project manager take advantage of coaching which can support self-reflection and resource-oriented decision making by asking the right questions. In addition, we always recommend **asking one or two colleagues** for advice. The more questions an individual can answer positively or offer have a clear vision for, the more that person’s motives will coincide with his or her personal career and life plans. The clearer the idea of who in the available

network can provide help, the more support there is for success as a project manager.

Checklist. What Do I Have at My Disposal; Which Aspects Speak in Favor of Taking Over Project Management?

1. Personal abilities: Reviewing competences and experiences

Can I

- communicate facts and provide technical guidance?
- argue and convince others effectively?
- take criticism and constructively criticize others?
- consistently pursue assigned objectives?
- master risks, conflict, and crises in a goal and solution-oriented way?
- admit a mistake on my part and talk about my own problems?
- listen to people, inspire and guide them in a predictable way?
- deal fairly with the fear and resistance of my team members, with mistakes, and with conflicting opinions?

Am I able and ready to

- work under extreme pressure of time and costs?
- take responsibility for pursuing the company's goals in the project (in particular in terms of financial results)?
- delegate tasks and responsibilities?
- check processes and tasks?
- deal with conflicts and disturbances in an anticipative and sensible way and involve the team?

2. Personal volition: Reviewing values and motivation

- Why do I want this position? What piques my interest?
- What are the benefits I expect from it?
- How does it match my medium and long-term career plans?
- During the project I will not be able to enjoy things that are important to me. How do I compensate for this sacrifice?
- To what extent do my career plans correspond with those of my partner?
- Where is there potential for private conflicts? Which areas of conflict can arise? How do I, how do we, plan to deal with them?

3. Inhibiting and beneficial environmental factors: Reviewing the available support

- Do I know experienced project managers I can turn to with questions? Would they be prepared to support me as a mentor?

- Do I have a network to support me?
- Do I have ideas and information on how to organize the structures, backup, and sequence of communication?
- Can I influence who is on the project team?
- Do I have networks and sources of information available to help me when setting up the team or assessing its competences?
- Do I know how to train the team for project work?
- How do I handle project members who have much more expertise in their field than I do and for whom I am not the direct line manager?
- How do I manage egoistic behavior, power games, or intrigues?
- How do I master disruptions in the provision of the company's resources, when my decision-making authorities are reduced, or when goals or the personnel on the side of external project partners change?

4. Standards and rules: Reviewing the company's policy and code of conduct

- Where is my project positioned in the overall organization of my company?
- Where, when, to whom and in which sequence should I introduce myself?
- Where do I get strategically important information?
- Which unwritten laws and structures need to be observed?
- Which official channels do I need to follow, and who has to be informed, when, in which sequence, and about what?
- Where are historical sources for disturbances (power games, experiences with clients and colleagues)?
- How do I organize the relationship between project and line management?
- How do I define the team's project obligations in relation to their line duties?
- What are the criteria for quality management of the processes in the project?
- Are there any functional profiles for project managers?

13.3.2 Implementing the Project

In practice, it appears that no matter how much information a project manager has before the project starts, complex and multifaceted disruptions and problems will show up at some point during the course of the project.

Project managers should therefore always asks two questions:

1. What can I do to get beyond passive responses to active steering and control?
2. What can I do to relieve stress and tension and ensure relaxation in the evening?

In our example, John selects an important **strategy** to regain control over the situation: He sets targeted **priorities**. He puts the focus on the customer, as he is the financial sponsor of the project. Therefore, the customer's wishes, any disruptions that could affect them, and solutions for related problems are the priorities, and planning **communication** with the customer plays a decisive role. Although this

leads him to gain control over the situation; for many project managers, this would not be sufficient to normalize their stress levels and relax after work.

John deliberately took over lots of the responsibilities himself, and therefore had the feeling to be permanently in demand as the only contact person. With this, however, tension and stress will only increase. Every project manager should consider intentionally **delegating** individual issues, disruptions, and problems to competent and trustworthy project staff.

Especially when project members are working in parallel on other projects or have prior project experience, it makes sense to use these **experiences and expertise** for the project. This includes a definition of what exactly will be delegated, who is responsible, what kind of decisions employees can take, and how the coordination with as well as the reporting to the project manager will be done. That way, **effective relief for the project manager** can be achieved.

The following checklist for self-reflection has proven to be very helpful for project managers. By answering these questions, the focus can be shifted **from the problem to the solution**.

Checklist. How Can I Focus on the Solution and Ensure a Balance Between Stress and Relaxation?

- **What can I do to get from reacting to problems to working towards a solution?**
 - What are the priorities? What takes precedence, what is the relationship between cost/benefit?
 - Which critical situations, conditions, and problems become apparent?
 - Which partners are affected?
 - Which useful structures can I employ, or create, for a solution-driven approach to problems?
 - What are the skills and competences of my project team?
 - To whom in the project can tasks and responsibilities be delegated? (What? How? Which information and authority does the team need? When and how are the project staff, project manager, and customer coordinated?)
- **What can I do to relax after work during the course of the project?**
 - How much time per week do I plan for the project?
 - How much time per day do I use for which project tasks?
 - Is this helpful for pursuing my goals? How can I optimize this?
 - How much time per week do I plan for relaxation and regeneration?
 - Which leisure activities recharge my batteries most effectively?

Since effective self-management can also improve the team's performance (Uhl-Bien and Graen 1998), each project manager should find his or her unique, ideally suited set of strategies.

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Part IV

Managing Innovation and Creativity

Günter W. Maier, Ute R. Hülshager, and Neil Anderson

Abstract

In present-day organizations, new products and services are almost invariably not invented or developed by one individual, but by project teams. Research into innovation in project team has flourished, and we now know a lot about which factors affect innovative behavior, innovative processes, and innovative outcomes in project teams.

14.1 Factors Influencing Innovation and Creativity

It is a commonly held belief that creative achievements or great innovations were created by outstanding personalities and scientists: Thomas Edison (the lightbulb), August Kekulé (the benzene ring), Benjamin Franklin (the lightning rod), or Artur Fischer (the anchor) are often cited. Consequently, scientific interest in the factors influencing creative and innovative performance has focused primarily on individuals. However, without detracting from the importance of these great innovators, it is obvious that **modern products** like washing machines, cars, mobile phones, or computer software are often more **complex** and therefore can no longer be seen to have been developed by one person, but require the

G.W. Maier (✉)

Bielefeld University, Work and Organizational Psychology, Bielefeld, Germany
e-mail: ao-psychologie@uni-bielefeld.de

U.R. Hülshager

Maastricht University, Department of Work and Social Psychology, Faculty of Psychology and Neuroscience, Maastricht, The Netherlands
e-mail: ute.hulshager@maastrichtuniversity.nl

N. Anderson

Brunel University London, Uxbridge, United Kingdom
e-mail: Neil.Anderson@brunel.ac.uk

cooperation of several individuals, usually working in project teams. While much evidence about the role of individual-level factors for innovation has already been gathered, the role of team-level factors has been gaining increasing scientific attention in the last decades.

The aim of this chapter is therefore fourfold: First, we will clarify the concepts of innovation and creativity; second, we will describe the innovation process; third, we will present those factors with the greatest influence on innovation at a group level; and finally, we will identify evidence-based interventions that strengthen innovative processes within groups. Our focus lies on group-related factors, because they play a major role in the planning, composition, and functioning of project teams. Further influencing factors on creative and innovative behavior at work at the level of individuals (e.g. cognitive performance, personality characteristics), tasks (e.g. scope, workload) and organizations (e.g. structure, resources) have been described extensively in other reviews (e.g. Anderson and King 1993; Maier et al. 2007; Mumford 2012).

14.1.1 What Is Creativity and Innovation?

Generally, **innovation** can be seen to be the development, invention, and application of new ideas, processes, or products which are beneficial to individuals, groups, or organizations (Maier et al. 2007; West and Farr 1990). This definition implies that generating ideas alone does not represent an innovation – it is equally important that the ideas are useful and can be applied.

Innovative ideas can be related to improving existing products or services, focusing on the optimization of internal processes or targeting the development of completely new products (Anderson and King 1993). **Creativity** refers to a part of the innovation process, namely the generation of new and useful ideas (Maier et al. 2007). Therefore, innovation and creativity are not synonymous.

How can **creativity and innovation be measured**? Within the management sciences and psychological research, quite diverse criteria have been taken into account, i.e. rather objective performance outcomes (e.g. the number of registered patents), behavioral indicators (e.g. participation in an organizational suggestion system), assessment of innovative behavior by self-report or other-reports (e.g. peers, supervisors), or experts' evaluations of product creativity (e.g. an advertisement). These different indicators are intended to measure the same phenomena, namely creativity or innovation, yet they are only slightly correlated. Accordingly, each of them captures only parts of the construct of creativity / innovation. Furthermore, each indicator is subject to different kinds of biases.

A good example is when project managers appraise their team members. These appraisals run the risk of being biased, because they are based on stereotypes derived from status attributes of the team members (Kasof 1995). For example, within the technical field, men are often perceived as more creative than women. **Creativity stereotypes** are especially likely to arise when a person's creativity has

to be assessed although his or her product has not been finalized yet. Interviews with scriptwriting scouts and Hollywood film producers showed that even the social judgments of experts (e.g. scriptwriting scouts in the film industry) are influenced by these stereotypes when they assess the creativity potential of unknown people (Elsbach and Kramer 2003). When assessing creativity, experts use behavioral (e.g., passionate or eccentric behavior) and physical characteristics (such as unconventional appearance) of potential writers and their own reactions to the proposed ideas (e.g. enthusiasm, eye-opening experiences).

Objective **performance measures** are therefore better than subjective perceptions. However, even these (e.g. the number of submitted patents) do not fully capture creativity or innovation: Frequently, patents are submitted by project managers rather than by the inventors themselves. Accordingly, the number of patents is rather a creativity or innovation indicator for larger units like work groups or departments than for individual employees. In addition, in some sectors, innovators also do not apply for patents deliberately in order to protect themselves against plagiarism. This is especially the case when the product can only be produced with the precise knowledge of manufacturing processes and/or ingredients (e.g. the composition of Coca-Cola or rubber compound tires, circuit diagrams of microchips etc.).

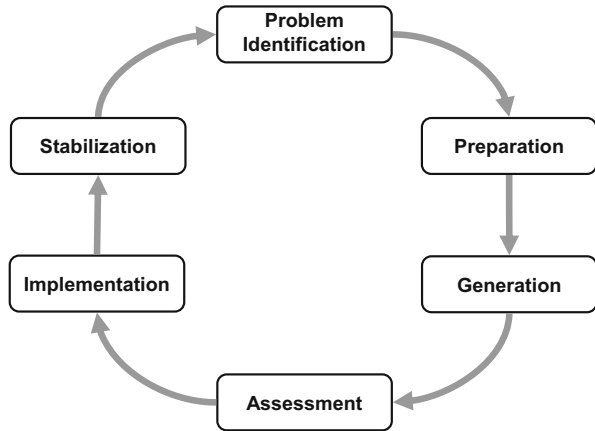
14.1.2 How Does Creative and Innovative Performance Develop?

The **innovation process** in organizations can be divided into **different phases**. The creative process itself is usually described in four phases, followed by further implementation phases (West 1990). These phases could be used for depicting innovative processes within individuals and groups. A distinction between these phases of the innovation process allows for a better description of the respective tasks and sub-processes involved. Notably, the six phases do not always follow one another in a linear fashion. Frequently, teams need to go back to earlier stages when working on an innovation.

- ▶ The innovative process can be divided into four creativity phases (problem identification, preparation, generation, and assessment) and two subsequent innovation phases (implementation and stabilization) (Fig. 14.1).

During the **problem identification** phase, the problem is identified and described. This requires individuals firstly to recognize a need for change, secondly to be confident about implementing the change, and finally to be willing to deviate from prescribed routines (Staw and Boettger 1990). In an interview survey of award-winning start-up companies, the following three **sources for innovation** were mentioned most often: Examination of an existing problem (71 %), discussions with colleagues or customers (54 %), and market needs (42 %) (Caird

Fig. 14.1 The six phases of innovation



1994). However, spontaneously generated ideas were comparatively rarely mentioned (21 %). These survey figures also illustrate that innovative ideas are not only based on a single source, but on multiple and varied influences.

- ▶ Contrary to popular opinion, most innovations do not originate from a sudden eureka moment. Mostly, they are the results of a conscious, purposeful, and preservative search for opportunities for improvement (Weisberg 1993).

Other studies have concluded that most innovations were created in response to suggestions from product users (Kanter 1988). A characteristic of this phase of the creative process is that problems are often badly defined in terms of origin, operations, or target (Weisberg 1993). That means that not all three components of a problem are clear or well-defined.

Example

An example of this is advertising agency briefs, which are commonly vague. In contrast, a well-defined problem is a problem-solving task, in which the origin, the operations, and the target are all clearly defined. Here, no ‘creative’ problem solving should be necessary.

In the **preparation phase**, where tasks are processed and assigned, team members **search for and assemble information**. Based on the resulting knowledge, possible **solutions are then developed** in the **generation phase**. The processes in these phases are highly interdependent (Ward et al. 1999): Available knowledge structures are retrieved, connections between them are identified and combinations or syntheses between these structures are made simultaneously. The existing structures are mentally transformed to form new structures of knowledge. The transfer from one knowledge domain to another can be accomplished by

drawing analogies, for example from nature. For instance, materials management was inspired by the special water-repellent biological structures of the lotus leaf. The resulting newly formed product categories are then reduced to their essential components.

In the final phase of the creative process, the **assessment phase**, the **solutions are analyzed and evaluated**. The present (partial) solutions are considered in light of the desired benefits (e.g. fuel reduction or the platform principle in the automotive industry), possibilities of transfer can be investigated (e.g. when a new type of motorcycle has certain attributes of a car, which additional features might it require?), uses and applications of the new structures could be considered (e.g. use of a medicine against a disease that might have symptoms similar to another), or the practical and conceptual limitations of the ideas can be investigated (Ward et al. 1999). All these evaluations are used to refine the current suggestions.

West (1990) has argued persuasively that two further phases follow these four phases of the creative process, namely the implementation and the stabilization phase. Both phases concern the implementation of the idea. In the **implementation phase**, other **individuals have to be convinced** to adopt the new ideas to get them applied and implemented. Where necessary, the suggested new options are again revised and adjusted when problems arise at the point of first application. With respect to process innovations, appropriate social norms must be developed in order to ensure the implementation of the new processes. Because problems often surface when new approaches are introduced, coalitions are formed among employees against the new procedures. This can be resolved successfully by establishing new social norms and standards. Finally, the **stabilization phase** describes the period in which the **innovation is applied permanently** and supported by the ensuing new routines and control processes. Usually, the innovation process thus ends when adjustments are made after the initial application and a supporting network of processes is established. However, in addition to the ongoing use of the innovation, another result of this last phase can be the reactivation of creative processes.

A final word of caution for these six phases – other research suggests that innovation is often a messy and unpredictable process in organizations that often involves ‘two steps forwards and one step back’ as it develops (e.g. West and Farr 1990). While this stage model is undoubtedly a valuable guide, it is just that. In reality, managers trying to implement innovative ideas, and those affected by innovation, will often experience the process not as a neat, linear model, but rather as a disjointed and iterative process over time.

14.2 Team-Related Factors Influencing Innovation and Creativity

Recent research has identified a large number of factors influencing innovation in teams. Notable attention has been given to the team climate, the group structure, and group processes. In the following, we will refer to the findings of these topics and describe their pragmatic ramifications in Sect. 14.3.

14.2.1 Team Climate

- ▶ Innovative and creative team climate comprises four dimensions: vision, participation safety, task orientation, and support for innovation.

Team climate denotes shared perceptions among group members with respect to their relationships, their tasks, and their work environment (Anderson and West 1996). Accordingly, various types of team climate can be distinguished: West (1990) identified four independent dimensions of team climate which influence creativity and innovation in groups: vision, participation safety, task orientation, and support for innovation.

The **vision** dimension describes to what extent the goals and visions of the group are recognized as motivating, clear, understandable, and accessible to the other members. **Participative safety** means the extent to which contributions to joint decisions within the team are recognized as trustworthy, impartial, inspiring, motivating, and rewarding. **Task orientation** refers to the degree to which team members feel committed to achieving high levels of quality, excellent performance standards, and continuous improvement. **Support for innovation** refers to the perceived social norms and expectations among team members in terms of active support during the introduction of new practices.

- ▶ The dimensions of the team climate vary in their importance during the different phases of the innovation process.

Influences of the Team Climate on the Innovation Process

West (1990) argues that these four dimensions influence the phases of the innovation process differently. In an early stage of the development of new ideas, the dimension **vision** is exceptionally beneficial: Based on the main shared goals, the attention will be focused on the identification of deficiencies and the anticipation of unidentified problems. During the phase of information collection and the development of different approaches, **participative safety** plays a more pronounced role. A strong presence of this dimension ensures that individuals do not feel punished or reproached for their contributions to the teamwork. This feeling thereby furthers even ideas that at first sight seem to deviate, but which are often

necessary for outstanding creative problem solving. When the implementation and application of the new product or process finally takes place within the team itself, the dimensions ‘**support for innovation**’ and ‘**task orientation**’ are advantageous. A large amount of ‘support for innovation’ ensures that the team members are receptive to new ideas instead of blocking them by forming coalitions or struggling for power. Strong ‘task orientation’ represents the motivational basis for committing to the adoption of means or processes that enhance productivity. More recent international research evidence has confirmed the importance of these climate factors in workteam innovation. In particular, the three dimensions ‘vision’, ‘task orientation’, and ‘support for innovation’ are very important for different criteria of group-related innovation (Hülshager et al. 2009).

Another aspect of team climate is **group cohesion**, which can be defined as the extent to which members feel bound to a group (Beal et al. 2003). As the meta-analytic results of Hülshager et al. (2009) show, group cohesion and performance behavior are highly correlated.

14.2.2 Group Structure

- ▶ With respect to creative and innovative behavior in groups, two aspects of group structure have received particular attention: Group composition and intragroup relations.

A widespread and theoretically-based assumption is that a high level of heterogeneity is a necessary prerequisite for creative behavior in groups (Amabile 1988). In literature, heterogeneity has been distinguished further according to the characteristics of the members in terms of whether it is task-related or demographic in nature (Shalley and Gilson 2004).

Task-Related Heterogeneity It includes all those features of group members which are important for the working process, such as expertise, skills, task-related experience, or membership in a specific department. On the one hand, task-related heterogeneity is often expected to promote creativity, because it provides the team with a diverse array of knowledge, skills, perspectives, and networks within the organization. On the other hand, if the differences between the group members are too large, heterogeneity can result in problems with, for example, basic communication and conflicting individual goals of team members (e.g. implementing the latest technologies versus fulfilling customers’ needs) (Dougherty 1992). Thus, high **task-related heterogeneity may result** in too many disagreements and **communication problems**. In situations when the team cannot successfully find a common style of communication (e.g. reaching a consensus before actions are taken; not judging too early etc.) (Lovelace et al. 2001) creativity will be interrupted.

Demographic Heterogeneity This includes all those features of the group members which are not directly related to the group's task, such as gender, age, or membership of an ethnic group. In this case, it has been argued that high **demographic heterogeneity** in groups reduces cohesion and **increases communication problems**. Recent research findings confirm the assumptions with regard to both forms of heterogeneity: There is evidence that task-related heterogeneity and innovativeness of groups are slightly positively correlated, while demographic heterogeneity and innovation display a negative relationship (Hülsheger et al. 2009).

Task Dependency With respect to interrelatedness within teams, we can generally differentiate between task and goal dependency (van der Vegt and van de Vliert 2002). Task dependency refers to the extent to which group members are reliant upon other members when fulfilling their task (Saavedra et al. 1993). This kind of dependency **can have a positive or a negative effect on group creativity**. On the one hand, results have shown that dependency does increase communication within groups. As a result, group cooperation, satisfaction, and performance increase (Saavedra et al. 1993). On the other hand, high task dependency can also result in diminished individual responsibility for the task, diminished effort and free-riding (Van der Vegt and van de Vliert 2002), so this effect is not entirely one-way.

Goal Dependency This describes the extent to which an individual's goal achievement and individual rewards are dependent on the goal achievement of the other team members (Van der Vegt and Van de Vliert 2002). It has been argued that goal dependency promotes mutual support and efforts on the part of **all team members**. It motivates team members to communicate and cooperate, which is conducive to innovation. This line of argumentation has been supported by recent meta-analytical findings revealing that task dependency is not strongly-related to group creativity, while goal dependency indeed is (Hülsheger et al. 2009).

14.2.3 Team Processes

- ▶ With respect to team processes, research has focused mainly on communication, leadership, and conflicts.

How people cooperate within groups influences their innovative behavior. **Communication and cooperation** takes place within teams as well as with teams and individuals outside of their own team. Quality and quantity of both kinds of communication and cooperation account for creative and innovative behavior in teams. With good cooperation structures in place, discussions are often problem-oriented, and mutual support is offered (Monge et al. 1992). Moreover, mutual

feedback among team members results in further improvements to products and processes (Zhou and George 2001).

Depending on the developmental stage of a project (e.g. the early creative phase vs. the late implementation phase), different kinds of **leadership behavior** benefit creativity and innovation. In early phases – for example in research teams – transformational leadership is especially helpful (Keller 1992), because employees are here inspired by it to think critically about traditional procedures and discuss deficiencies. Furthermore, when employees are shown organizational visions, they could become motivated to accomplish them (Waldman and Bass 1991). Additionally, the experimental results of Redmond et al. (1993) show that managers could enhance the creativity of their employees if they are successful in strengthening their employee's self-efficacy and in equipping them with problem-solving heuristics (e.g. seeking all possible influencing factors before starting the development of a solution). In later phases – for example in development teams – it is especially necessary to focus on adhering to deadlines, budgets, and restrictions. Therefore, transactional leadership behavior is helpful here (Keller 1992).

Example

Two kinds of leadership: transformational and transactional

Two different kinds of leadership are often distinguished in research: Transformational vs. transactional leadership

- **Transformational leadership (tfl):**

Tfl influences employees, as managers try to successfully associate their followers' tasks with higher-order goals and values, e.g. striving for ideals which are valued in society (e.g. conservation of nature). Tfl is characterized by the leader acting as a role model, motivating with inspiring visions, or encouraging employees to look at problems and question conventional procedures.

- **Transactional leadership (tal):**

It is the characteristic feature of tal that the relationship between leaders and followers is purely based on exchange. This is established by rewarding employees contingent to their performance, by actively controlling them, or by not changing conditions and working processes unless necessary.

A creativity-enhancing leadership style is important because a high level of risk-taking is often necessary for the creativity process. Such risk-taking behavior is essential, because in order to be innovative, individuals need to deviate from established and traditional procedures; they need to point to errors and deficiencies or make suggestions that may initially seem absurd. Therefore, leadership behavior that enhances **risk-taking benefits innovation** by offering employees reassurance.

For example, this can be achieved by supporting employees (Amabile 1996) or strengthening the relationships between leaders and followers (Scott and Bruce 1994). This idea has been supported by studies on error detection in organizations, which is a fundamental prerequisite in any optimization process: Errors have more often been officially-registered in teams with a supportive, error-friendly leadership style. In teams with a less optimal leadership style, errors are noticed less often, albeit the same number of errors occurred in both cases (Edmondson 1996).

All in all, recent research has confirmed the mixed importance of leadership behavior, because of the twofold affordance of creative/innovative behavior (Rosing et al. 2011). Rosing et al. reasoned that leadership behavior can be differentiated between opening and closing behavior: A leader's opening behavior refers to behavior that encourages employees to take risk, to leave the beaten paths of task accomplishment, or to accept errors as useful hints for finding new ideas (e.g. transformational leadership). Closing leader behavior refers to behavior that is more focused on goal achievement, the development, control, and optimization of routines, or the prevention and penalization of errors (e.g. transactional leadership). Both kinds of behavior are helpful for creativity and innovation, depending on the developmental status of the innovation project: Opening behavior is helpful in the early or generating, closing leader behavior in later or implementing phases of the innovation project. Therefore, successful leaders of innovation projects should be able to adapt their behavior flexibly to the given conditions of their projects.

Summarizing all of the recent research, one set of authors (Bledow et al. 2009) proposed seven 'rules' to guide the management of complex innovation processes (so-called 'dialectics' – see below).

The Seven Rules of Innovation Management (Bledow et al. 2009)

1. Do not believe in the illusion of the easy manageability of innovation
2. Do not separate a new product's/service's development from its exploitation unless absolutely necessary
3. Know that dialectics imply a never-ending development of thesis-antithesis and synthesis
4. Be wary of quick and popular distractions (e.g. the distraction between incremental and radical innovations)
5. Manage the flow of knowledge: Use both knowledge and ignorance in equal measure
6. Provide discretion to innovators
7. Always be flexible and adaptive when managing innovation

14.3 Evidence-Based Approaches for Improving Innovative Behavior in Teams

- ▶ Interventions should be based on the three important areas supporting the innovative behavior of teams – team climate, group structure, and group processes.

14.3.1 Team Climate

Enhancing creative and innovative behavior in teams can be achieved by optimizing the **climate in the team** (see example below) as follows: First, the team climate for innovation should be assessed, for instance by means of the Team Climate Inventory (TCI) (Anderson and West 1998) which is available in various languages. Beginning with the administration of the questionnaire, the anonymity of the team members must be guaranteed in order to ensure the reliability of their answers. Second, the project or team manager, supported by a facilitator if need be, presents the results of the survey to his or her team. Finally, in the following group facilitation process, the team has to identify those dimensions of the team climate they are going to work on and improve. Specific dimensions of the team climate can be optimized with systematic team development activities. For example, the dimension of **‘support for innovation’** can be enhanced by the following **team-building activity**: Barriers against creative ideas are often put up by reactions like “Yes, but . . .”. The apparent approval “Yes” will immediately be undermined by the qualifying “but”. A helpful exercise for improving communication would be to replace this creativity-restricting approach by using a phrase like “Yes, and . . .” (Anderson et al. 1997).

Example

The TCI could be used in a team development process in order to get diagnostic information about specific strengths and deficiencies of a team. For example, the TCI was used in the executive team consisting of five managers at a hospital with 170 beds and 970 employees (team A from Anderson and West 1996). The results of the TCI showed, on the one hand, high values in the dimensions ‘participative safety’, ‘support for innovation’, and ‘task orientation’, and, on the other hand, low values for the dimension ‘vision’. The specific analyses of this deficient dimension revealed that the aims of the group were unclear and the members of the team questioned the value of the group’s goals. The following team development process started by explaining the results of the TCI. In the following discussion, the managers decided to develop the tasks of the team. In doing so, the intention was to enhance the significance of the group goals for the team members. Further detailed analyses had also shown that one aspect of the

dimension task orientation – ‘appraisal’, i.e. a self-critical check of one’s work – was rather low. Therefore, the team decided to focus on an improvement in this dimension in the following sessions of the team development process.

14.3.2 Optimizing Group Structures

For optimizing **group structures**, one can focus on **task-related heterogeneity** and task dependency. Task-related heterogeneity can be achieved by intentionally planning the group composition in order to choose members for the team who differ with respect to their task-related knowledge or competencies. This should promote discussions about the group’s tasks and enhance creative ideas in the long run. Furthermore, a high amount of **task dependency** can be attained by including goals in the goal setting process, which can only be achieved with the cooperation of other group members. In addition, all members should be informed that they are pursuing goals which can only be accomplished together as early as possible, for instance in the kick-off meeting. Furthermore, these cooperative goals should be disclosed in this first meeting.

14.3.3 Group Processes

Improvements in **group processes** can be achieved by developing the leadership style and behavior of project leaders or by optimizing the style of communication in the team. For creativity and innovation-enhancing leadership behavior, it seems to be essential that team leaders **adapt their leadership behavior to the developmental status of their project**: In the early phase of an innovation process, transformational leadership behavior is especially helpful, because team members here need to be convinced with clear, shared, and highly valued visions. The members should perceive these visions as worth striving for, and therefore identify with them. By contrast, when the idea generation phases are completed, teams often have to focus on the implementation of their ideas. Here, the project leaders have to concentrate on adhering to deadlines and budgets. Therefore, transactional leadership is more appropriate in order for the team to produce optimal results, because goals are clearly stipulated, the progress towards the goals is monitored, and the performance appraisals are based on people’s work towards their targets.

Communication within project teams can be **enhanced by specific team development activities**, first by analyzing communication processes in and between teams, second and as a result by identifying the barriers to the open and secure flow of information, and third by reaching agreements in teams about how to optimize communication processes. Communication processes could also be supported by architectural modifications, using the long-established observation of Homans (1950), whereby sympathy proportionally increases with the frequency of contact: For example, development and marketing departments could be

relocated, so that they are near each other and help improve communication between both departments.

14.4 Conclusions

The findings of innovation and creativity research regarding group-related factors demonstrate beyond doubt that three team aspects are especially important

- team climate,
- group structure, and
- group processes.

The most influential factors within these areas are specific dimensions of the team climate as well as communication, cohesion, leadership, and task dependency. An extensive body of research allows us to draw **practical implications**. These implications should be considered at the early stages of the planning and building of project teams, and at the very least during their working stage.

The following checklist summarizes the most important aspects we have covered in this chapter.

Checklist. Starting Points for Optimizing Innovation and Creativity in Teams

1. Team climate
 - (a) Measuring team climate
 - (b) Giving feedback about team climate
 - (c) Identifying a participative need for optimization with respect to specific dimensions of team climate
 - (d) Conducting team development interventions in order to strengthen specific dimensions of the team climate
2. Group structure
 - (a) Composing teams to ensure high task-oriented heterogeneity
 - (b) Striving for high task interdependency
 - (c) Informing team members about goal contingencies as early as the kick-off meeting
3. Group processes
 - (a) Aligning leadership behavior according to the developmental status of a project: In an early phase, transformational leadership, later on, transaction leadership is recommended
 - (b) Complying with the ‘Seven Rules’ of innovation management and leadership
 - (c) Analyzing and optimizing communication processes

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Eva Traut-Mattausch, Rudolf Kerschreiter,
and Christoph Burkhardt

Abstract

Efficiency in production and optimized processes are no longer sufficient to guarantee success. Keeping up with global corporate developments requires a continuous effort to come up with original products, extraordinary solutions, and new types of marketing. More than ever, before companies are in need of capable employees who are able to explore new solutions to the problems they are facing and collaborate to open up overlooked opportunities and new markets. Creative thinking skills and techniques help individuals as well as project teams to think differently, overcome cognitive blockades, leave existing paths and come up with new and original ideas that add real value.

15.1 What Makes People Creative?

- ▶ We define **creativity** as the generation of original ideas which add value. Furthermore, **innovation** refers to the implementation of those ideas.

Corporations are in constant need of creative individuals who are capable of exploring new markets and business opportunities. Facing current and future challenges in a globalized world requires creative thinking, original solutions,

E. Traut-Mattausch (✉)

Department of Psychology, University of Salzburg, Salzburg, Austria

e-mail: eva.traut-mattausch@sbg.ac.at

R. Kerschreiter

Department of Education and Psychology, Division Social and Economic Psychology,
Freie Universität Berlin, Berlin, Germany

e-mail: rudolf.kerschreiter@fu-berlin.de

C. Burkhardt

Burkhardt Group, Munich, Germany

e-mail: christophburkhardt@me.com

and innovative ideas. Google and Apple are frequently ranked among the most innovative companies in the world. Both are known for the astonishing pace with which they come up with new products and services. Nevertheless, what seems to make these organizations so effective in their innovative activities is far more than can be seen on the overt level of their products. One fact is undisputed: Neither case can be attributed to luck alone. It is the innovative potential of the employees working for Google, Apple, and many others that contributes largely to their successful endeavors. The creative minds of people are responsible for innovations that are capable of changing the world.

So what is it that makes people creative? Which attributes distinguish a creative from a non-creative mind? Teresa Amabile (1996) provides us with an answer by identifying **three components of creativity**.

One fundamentally important component within the creative process is **task motivation**. The most creative solutions and ideas stem from people with a high level of intrinsic motivation or inner passion to work on the task at hand. Not driven by extrinsic rewards such as money means that it is the enjoyment of work itself which motivates the individual. Can intrinsic motivation then be influenced at all? Absolutely, it can. Intrinsic motivation can be most immediately supported by the environment people are working in. Furthermore, motivation is more a decision to be motivated by one thing or the other than it is something inherent in a person (Sternberg 2006)

Besides motivation, it requires **expertise** to be creative. Expertise is displayed most often in knowledge in technical, procedural, or intellectual areas. Despite the need for knowledge and expertise, recent research suggests that tenure and education do not necessarily increase the likelihood of creative solutions or innovation (Hammond et al. 2011). Even though knowledge becomes a necessary resource for creative thinking, it is not sufficient for innovation processes. We need a third, often underestimated component of creativity, that is, creative thinking skills.

Creative thinking skills refer to the knowledge about techniques which enable an individual or group to think differently. The skill depends on work style and personality as well as on an interest in unrelated areas of expertise and persistence in the process of learning and developing ideas. Can creative thinking be trained and improved? Research seems to indicate this. When simply asked to be more creative, students developed more creative thinking if this thinking is rewarded, rather than punished (O'Hara and Sternberg 2001). In the most recent study, people were asked to think "off the beaten path" and adopt a problem-solving approach (e.g. a very rational analytical approach) that differed from their typical way of thinking, which made them more creative as the results showed (Dane et al. 2011). Furthermore, in regard to intellectual skills, it is important to be able to escape the boundaries of conventional thinking, to distinguish exceptional from mediocre ideas and also to be able to sell other people on the value of one's ideas (Sternberg 1985).

Based on these three components of creativity, novel ideas in the form of innovative products, services, or processes require high task-related intrinsic motivation, sufficient knowledge and expertise, and additional creative thinking skills which can indeed be learned, trained, refined, improved, and practiced. At the core of this chapter, we will provide techniques and skills which support employees from the beginning to the end of the creative journey. The goal is to foster creativity in all

stages of the creative process, thereby increasing the odds for innovation. We furthermore believe that a profound improvement in the quantity and quality of ideas will add value to every project and business endeavor.

15.2 The Psychology of Creative Thinking: The Brainstorming Myth

Only a few techniques for creative thinking have been systematically examined based on scientific principles (cf. Sternberg 1999). Many of the established methods in use have not been researched yet. One exception to this can be found in the research literature on brainstorming and its effectiveness.

In contrast to common belief, brainstorming in groups does not lead to more diverse or more creative ideas. In fact, a plethora of studies has shown that **brainstorming** in groups systematically **decreases the likelihood** of original ideas of high quality being put forward. In comparison to the group's performance, the same number of people does a much better job when they produce ideas separately and independently from each other (Mullen et al. 1991). This effect is caused by a group phenomenon called 'production blocking' (Nijstad et al. 2003). The individuals in a face-to-face group hinder each other in the generation and articulation of ideas by interfering with the cognitive process of generating ideas. While listening to the ideas of others and waiting for their turns, individuals' thought patterns and associations are blocked by the delay between the generation and articulation of their ideas. Besides this organizational inhibition, it is also the flexibility of the process which is systematically disrupted by production blocking (Nijstad et al. 2003). A possible solution to the detrimental effects of groups attempting to generate ideas collaboratively can consist in replacing verbal, spoken aggregation with brainwriting methods with which participants share their individual ideas in written form and subsequently discuss them with the group (cf. Sect. 15.3.2; Paulus and Young 2000).

To further illustrate how some techniques and methods foster creative thinking, we will provide an overview in the following part of this chapter.

15.3 Footholds for Improvement: Project-based Creative Thinking

Creative thinking skills support the systematic definition of problems, the generation of innovative solutions, and the appropriate evaluation of ideas as part of successful project management. Accordingly and in reference to their purpose, creative thinking tools can be classified as methods for **problem definition**, **idea generation**, or **idea evaluation**. The tools in each category provide users with appropriate means to meet the specific demands of each phase in the creative process. In the preparation stage, the major task is to define the problem. Creative thinking tools help with the analysis and redefinition of problems at this stage. In the following incubation and illumination stages, methods which foster the

generation of ideas are of great value. In the final verification stage, methods for the successful evaluation and selection of ideas build the foundations for the effective implementation of the chosen idea. Following this logic, creative thinking tools and techniques are analyzed and presented in terms of the following categories.

Classification of Creative-Thinking Goals and Methods

I. Problem Definition

- Purpose: Promoting the analysis and comprehension of the problem by increasing knowledge, transparency, and structure
- Methods: Progressive Abstraction, Matrix of Hypotheses, KJ-Method, Mind Mapping

II. Idea Generation

- Purpose: Supporting the ideation of creative solutions and the exploration and consideration of as many options and alternatives as possible
- Intuitive and Analytical Methods: Brainstorming (Classic and Imaginary Brainstorming, Successive Element Integration), Brainwriting (Method 635, BrainWriting Pool, Collective Notebook), Synectics (Random Stimuli, Classic and Visual Synectics), Osborn's Checklist, Analytical Methods (Morphological Analysis, Attribute Listing)

III. Idea Evaluation

- Purpose: Fostering the adoption of a critical attitude towards the generated ideas by guiding the decision making process
- Methods: Negative Brainstorming, DeBono's Thinking Hats

15.3.1 Problem Definition: Defining the Problem Is Part of the Problem

Every creative, yet effective solution has its roots in the clear articulation and **understanding of what constitutes the problem'** scope, i.e. the space which contains all possible solutions to a specific question. Somewhere within this space, a solution can be found. Tools and methods used in the problem definition stage help to understand the inner logics of the problem. Particularly complex problems require an **exhaustive exploration of all the factors involved**, resulting in more clarity and knowledge about the structure and causal relations in the problem space, which ultimately results in revealing a solution. Whenever project teams come together, their members bring with them their unique perspectives,

expert knowledge, and paradigms. A collaborative analysis and cooperative definition of the problem brings these perspectives on the table and enables a common understanding. The integration of different paradigms can be a challenge, but it is essential to the success of the project to incorporate as much diversity of knowledge as possible. As Sternberg (2006) suggests, more creative thinkers invest a lot of time up front, saving time and effort by processing the problem faster and more efficiently later.

Focus on the Details and Go from There: Progressive Abstraction

Background

Questioning the initial definition of the problem helps to identify unseen factors and relations. Progressive abstraction changes the perspective of the problem by opening up the space of potential solutions. This often results in a **shift of the approach to solving a problem** by increasing the willingness to explore new paths and opportunities.

Course of Action

At the beginning, project members articulate solutions to the initial problem definition on the spur of the moment. Now, the solutions are examined as to why they do not meet the level of satisfaction they are supposed to meet. By asking **“What is going to make the difference?”** the essence of the problem is being revealed and the definition moves on to a higher level of abstraction. Then, the answer which reveals the essence becomes the new problem and the process starts all over again. Once more solutions are proposed and analyzed as to which degree they meet the requirements. The goal to identify what is going to make a difference (to customers, clients, suppliers, stakeholders etc.) remains the same throughout the creative process. Progressive abstraction requires expert knowledge and substantial analytical abilities from all participants. If the abstraction on higher levels of the problem becomes too difficult, this might be due to a lack of expert knowledge and should be addressed as such by the facilitator or project leader.

Understanding Relationships and Detecting Linkages: The Matrix of Hypotheses

Background

The purpose of this matrix is to detect latent obstacles by analyzing the facts of a problem and how they interact with each other. The Matrix of Hypotheses reveals the relationship between two subject areas and makes them transparent.

Course of Action

For each of the two subject areas (A and B), as many statements as possible are compiled. For example, in the subject area ‘design properties of a cell phone’, statements could refer to the size of the keyboard and the display, the color of the phone, or the usability of the pull-down menu. In the second subject area ‘target

Fig. 15.1 A hypothesis matrix (Adapted from Schlicksupp 2004, p. 69)

		Statements about A									
		A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Statements about B	B1						X				
	B2		X	X							
	B3										
	B4										
	B5							X			
	B6										
	B7										
	B8					X				X	
	B9		X								
	B10										

group 50+', statements might be about quality awareness, farsightedness, or traditional values. These statements are subsequently compiled in the **Matrix of Hypotheses**. Next, every statement from area A is confronted with every statement from area B, thereby exploring whether there is a relationship between the two. If this is the case, the respective box in the matrix receives an X (see Fig. 15.1). In our example, there is a relationship between the size of the keyboard and farsightedness; the respective field is therefore marked. We recommend to **include several experts** in the process of collecting information in the subject areas. This ensures that more relevant information is being considered throughout the succeeding process. Furthermore, relationships between different statements can be accompanied by a system of meaningful symbols such as '+' for a positive, '-' for a negative or '!!' for a very important relationship (Schlicksupp 2004).

Adding Structure to Complexity

There are many more methods for analyzing problems which work by approaching the definition and articulation of problems. Two other exceptionally successful tools we recommend are the **KJ Method** and **Mind Mapping**, both of which address the structure and architecture of complex problems at their core.

15.3.2 Idea Generation: Intuitive Methods

To advance the **generation of ideas**, two different approaches can be distinguished, one of which focuses on non-reflective processes with an intuitive emphasis. Methods based on the **intuitive approach** make use of human associations,

analogies, and comparisons, while transferring and compiling separate structures. By contrast, methods with an **analytical emphasis attempt** to structure cognitive processes and provide a scaffolding system to organize the elements of a problem systematically and redefine or rearrange them.

In a strict sense, creative thinking tools with an intuitive approach are the archetypal creative thinking methods, since they foster creative thinking in problem solving processes, evade cognitive blockades and avoid conformity. Brainstorming, brainwriting, and Osborn's Checklist are based on free associations and analogies and on transferring attributes to the initial problem. Along the way, problem solvers are provided with such **tools to find their solutions**.

Generating Diverse Solutions: Classic Brainstorming and Possible Variations

Background

The goal of every brainstorming session has to be to develop as many ideas as possible before beginning their evaluation. Separating the two stages is critical for success, and many groups and individuals **fail by not acknowledging the distinct boundaries** between the generation and evaluation of ideas. Four rules have been shown to be helpful in counteracting cognitive conformity throughout the creative process in a brainstorming session (Osborn 1953):

– No criticism or debate

Keeping the processes of the ideas' generation and evaluation separate from each other effectuates the free and unimpeded production of ideas and articulation of thoughts in reference to the problem at hand. Recognizing and visualizing each and every idea is crucial. By acting as a positive reinforcement, it increases the likelihood of more ideas being shared. When the Norwegian painter Edvard Munch presented his work for the first time in Munich, the exhibition was opened and closed on the same day due to unexpectedly negative response of the public. Thus, even if creative ideas are both novel and valuable, they might be rejected at an early stage, paradoxically for being innovative (Sternberg and Lubart 1996). To make sure that innovative ideas are not killed at an early stage, statements boosting uncertainty or frustration such as "that's never going to work" or "that's a silly idea" are prohibited.

– Quantity over quality

Consider simple statistics: The more ideas are articulated, the higher the likelihood that the solution will be among them.

– Freewheel

New ideas are better than old ones. Not only should participants attempt to produce as many ideas as possible, but also ideas as unconventional as possible.

– Combine and improve

The human mind is highly associative and one thought often triggers another. Combining the ideas of others can result in chains of association leading to unexpected solutions. In brainstorming sessions, there should not be any copyright law, competition over ideas, or focus on specific tasks.

Course of Action

A brainstorming session starts with a presentation of the problem and description of the rules. Simple problems can be worked through in a session of about 60 min. Ideally, the group consists of five to seven participants with diverse backgrounds and experiences. Heterogeneity among the participants according to their level of expertise improves the effectiveness of the session. Novices should have a modicum of task-related knowledge, but they are not required to have any expertise in the technical aspects of the problem. A neutral **facilitator** supports the group by **providing guidance and structure**. Besides scaffolding the brainstorming session, the facilitator is also in charge of the rules and should make sure that participants stick to them and at the same time remain actively engaged throughout the session. Furthermore, it is very advisable to have someone capture all ideas and visualize them for everybody. This can be done on a **flipchart**, for example. After the initial brainstorming session, we recommend including an opportunity to submit further ideas.

Handling Gridlocked Problems: Variations on Classic Brainstorming

To get as many and creative ideas as possible on the table, **inventive brainstorming techniques** can foster the ideation process by changing one or several of the restrictions of the problem. For example, the frame of the problem “How should the user experience of the next generation ATM cash machines look like?” could be replaced by changing the restrictions to “How would a five year old use an ATM?” After the ideation stage for the replacement question, the solutions are transferred and applied to the original problem. By doing so, the individual minds overcome the urge to stick to obvious solutions. Openness for different perspectives is thereby encouraged and participants are empowered to make use of their imagination.

Integrating Individual Solutions Within a Common Framework: Successive Element Integration

If a problem requires the integration of elements rather than the generation of various separate ideas, Successive Element Integration can be applied to systematically integrate what individual group members come up with. In the first stage, individuals separately generate ideas to approach the task. A single idea is then presented and its advantages are discussed in the group. After that, a second idea is

presented and discussed accordingly. In the subsequent second stage of the process, the group has the task to integrate both ideas within a common framework. The same procedure is applied to the next set of ideas and every following, until **ideally every idea in the room is integrated** within the collaborative solution.

- ▶ When applying brainstorming methods to international work groups, attention has to be paid to cultural differences and social norms respectively. Publicly announcing one's ideas can be considered inappropriate behavior for some group members. In the case of culturally diverse groups, brainwriting might be the method of choice which resolves the issue of public ownership of ideas in the first place.

Avoiding Production Blocking and Process Losses: Brainwriting

Background

The rules for brainwriting methods do not differ significantly from those of brainstorming. The main difference lies in the fact that participants **write ideas down** instead of stating their individual ideas aloud, thereby avoiding production blocking along the way. Brainwriting tools are particularly useful if many people need to be included in the ideation process at the same time or if there is tension and conflict to be expected among participants, for instance due to differing positions in the organizational hierarchy. Furthermore, brainwriting supports the ideation of more complex solutions that require multi-dimensional thinking (Nijstad et al. 2003).

Providing More Structure: Method 635

Method 635 is another group creativity technique resulting in 108 ideas in 30 min. This technique involves **6** participants who each write down **3** ideas within **5** min on a sheet of paper. A facilitator makes sure that the sheets are then passed on to the next person, and the 6-3-5 process starts again. After each of the 6 participants has written 3 ideas on each of the sheets, a total of 108 thoughts or ideas has been compiled. The participants are encouraged to draw on the ideas of others for inspiration. Thus, **ideas inspire ideas** throughout the creative process. Method 635 enables everyone to add to already existing ones, to vary existing patterns, or to create completely new ideas.

Throughout the procedure, the intervals can be shortened in the beginning and extended again when more and more ideas have to be read first before generating new thoughts. It is crucial that the participants write legibly, do not talk, or make judgmental comments. At the end of the session, the ideas can be explained, discussed, or developed further by the team.

Opening Up the Structure: Brainwriting Pool

The participants are seated around a large table. After presenting the task, each person writes down ideas on cards or post-its and places them at the center of the table (which becomes the brainwriting pool). The time needed or the number of

ideas each participant produces do not matter. When no more ideas come to mind, every participant is free to pull one or more of the ideas from the table for further inspiration. Again, completely new ideas can be created based on the inspiration from others, ideas can be varied, or participants can piggyback on existing ideas. The whole process can be repeated **until everybody has read and added to every idea on the table.**

Empowering Virtual Teams in Different Locations: The Collective Notebook

The Collective Notebook does not require the simultaneous presence of all group members, but allows every participant to create and add ideas throughout the day. This technique is particularly powerful in creating a **survey of potential problem-solving approaches** at the beginning of a project.

The notebook each participant receives contains a detailed description of the problem or task and the request to note down ideas within a given timeframe. Again the rule ‘quantity over quality’ applies. After the ideation stage, the notebooks are collected and evaluated and the results are shared with the participants. Besides having notebooks circulate among participants, the group can also be invited to join a collaborative creativity session and develop, discuss, and work on the ideas face to face.

Preventing Sticking to Thinking Habits: Confrontation Methods: Synectics and Random Stimuli

- ▶ Brainstorming and brainwriting methods foster the generation of a large number of ideas. In contrast, confrontational methods bring about more original ideas and higher levels of detailed creative thinking. The most prominent of these intuitive methods is called classic synectics.

Background

Confrontational methods are based on the idea that by dealing with content that is unrelated to the initial problem, cognitive biases towards certain solutions can be overcome and the application of existing patterns for solving problems can be circumvented.

With **classic synectics** (from the Greek “syn” = together, “ektos” = outside) elements of a problem are brought together with elements of another area of knowledge by analogy. New inspirations for the original problem then arise from transferring unrelated structures to the actual problem. Classic Synectics thereby follows two principles

- (a) the unfamiliar is transformed into something familiar
- (b) the familiar is transformed into something unfamiliar

<i>Stages</i>	<i>Steps</i>	<i>Example</i>
Preparation	Problem Analysis	Redesigning the packaging for a medical product, so that it can be opened easily by adults, but not by children
	'Purge'	Combination lock; the spoon can be used as a key; opening the can requires a coin
	Redefined Problem	Same as the initial problem, but with the added restriction of keeping the additional costs to a minimum
Incubation	Close Analogy	Are there any known comparable instances in nature? How about hedgehogs, the shells of mussels, sweet chestnut or octopus?
	Personal Analogy	How do I feel as a sweet chestnut? I am maybe proud of my spikes; I would like to fall on someone's bald head...
	Symbolic Analogy	Paradox analogy for falling on someone's bald head: Defensive aggression; <i>morbid lust for life</i> ...
	Direct Technical Analogy	What technical instances might be reflecting a morbid lust for life? Race cars; charter flight; <i>an old steam locomotive</i> ...
	Analysis of Analogies	Which attributes are associated with an old steam locomotive? It belches smoke; has complicated conductions...
Illumination	Force Fit	How can these elements be applied to the original question?
		A small sponge soaked with pungent liquid connects the lid with the can; the pillbox contains a labyrinth so that only the right turns open the lid...
Verification	Evaluation	Planning the implementation of the solutions

Fig. 15.2 The synectic process (adapted from Schlicksupp 2004, p. 216)

Figure 15.2 shows an outline of a synectics session.

Course of Action

Preparation Stage In this first stage, the problem is defined, discussed, and elaborated. Subsequently, the participants **propose spontaneous solutions**, thereby preparing themselves for the ideation process. This step is called **'purge'**, because it breaks down cognitive blockades. It is essential to avoid the bias towards sticking to the first possible solution. In this first stage, misunderstandings are revealed and the

problem is redefined on a higher, more inclusive level of understanding, following the idea of **transforming the unfamiliar into something familiar**.

Disassociation Stage In the next stage, common sense and common associations are inhibited by following the principle of transforming the familiar into something unfamiliar. The goal in this stage is to **depart from the problem** by drawing certain analogies:

- First, a **close analogy** to the problem is drawn, for example: “selling science is like selling cars”. From the proposed analogies, the participants or the facilitator pick the best one, i.e. the one they like best.
- In the second disassociation stage, a **personal analogy** is built. The participants themselves become part of the analogy and are requested to put themselves in the shoes of someone or something in the picture, while describing all the needs and feelings associated with being that object (e.g. “what a car needs that is being sold”). After compiling these feelings and needs, the next stage is initiated.
- The chosen need or feeling is now accompanied by a **symbolic analogy, containing an adjective and a noun**. The noun covers the essence of the personal analogy, the adjective superimposes a paradox to create a surprising contrast such as ‘creative conformity’. In this manner, statements are compiled which symbolize the meaning of the personal analogy. After these symbols are found, the favorite one is selected to enter the final stage of the process.
- In the fourth stage of disassociation, a **direct analogy** from the technical field is added to the symbolic representation. The picture identified now is elaborated further in terms of all relevant attributes and analyzed accordingly.

Transfer For the last step in the process, all of the attributes of the analogy are transferred to the original problem, which is called ‘**force-fit**’. The question underlying the force-fit is **how the analogy can help solve the original problem**. Cognitive links are formed by comparing the attributes of the analogy with the attributes of the problem.

Evaluation Stage In this stage, concrete solutions are discussed, their feasibility is evaluated and a decision is made (Schlicksupp 2004).

Due to its strict agenda, classic synectics is one of the most complex and sophisticated creative thinking techniques. It is therefore more applicable to groups with experience in collaborative creative thinking. Furthermore, we recommend a group size of five participants and professional facilitation to guide through the structure.

Random Stimuli Classic synectics can be simplified and applied to settings with only one person by using random stimuli. These stimuli have a **disassociating effect independent of the problem**. The four analogy building blocks are not required with this method, since there is only the force-fit between problem and the attributes of a random stimulus. The development of more efficient packaging for

milk, for example, could be accompanied by the random stimulus of a ‘soccer ball’ which is white and black in color, consists of different pieces, is round, can be filled with air, and bounces back from the ground or the wall. After collecting the attributes of the random stimulus, they are transferred to the original question, in this case, a milk carton.

Visual Synectics Verbal material is not alone in serving as a creative stimulus. The same goes for **pictures** that can become the **source of inspiration**. With visual synectics, different objects in a picture are analyzed regarding their attributes. If, for example, a picture shows a house, the specific attributes of the house are identified and then transferred back to the original problem.

Developing New Products and Processes: Osborn’s Checklist

Background

Going back to Alex Osborn, the originator of classic brainstorming, this checklist focuses on a few aspects of a problem and enriches them with a plethora of ideas. A list of questions supports this enrichment by **guiding attention to overlooked dimensions**. Osborn’s Checklist (Table 15.1) serves as a tool to make the search for potential solutions more diverse and to open it up to unexpected paths. Attention is brought to the overlooked corners to complete the picture and thereby drastically reduces the likelihood of going with the first solution. The nine categories of the checklist constitute a general approach which can be adapted to the specific demands of the problem at hand. In particular, the development of new products and processes benefits from this method (Osborn 1953).

Table 15.1 Checklist of new ideas (cf. Osborn 1953)

1. Put to other uses	Could this product be used in a different way? As it is, what else could you do with it? If modified, what could we do with it then?
2. Adapt	Is there anything similar to this problem? Which solutions or examples are comparable to this one? What do these past solutions tell us?
3. Modify	Can we give it a new angle? Can we change specific attributes? What happens if we change the meaning, color, sound or shape of it?
4. Magnify	Can we add anything? What happens if we magnify the product? Can we double it in size? What happens if we do so?
5. Minify	What can we take away? What happens if we reduce the product’s size? What if we shorten it? What are the consequences?
6. Substitute	Can we replace elements of the product with something else? Other material? Other places? Other approaches? Which solution would we find?
7. Rearrange	Can we swap components? Can we alter the pattern, sequence, or layout of our processes?
8. Reverse	Can we build the opposite of what we have now? What happens if we reverse procedures and assumptions?
9. Combine	Can elements of our product build a new product? Can we form another product out of existing elements to serve the same purpose?

Course of Action

The first step in the process contains the selection of those questions in Osborn's checklist that are relevant to the problem. The questions are then applied to the problem and new variations and options are systematically detected for the product or process. One recommended means for documenting the results is mind mapping on a pin board, with the question categories acting as the limbs of a tree. After all the questions have been answered, the solutions can be evaluated and the best ones are selected. It is crucial not to confuse answering the questions with evaluating the solutions, as this lowers the likelihood of premature decisions. The **generation and evaluation of ideas** should always be **kept separate**. It is also advisable to assess every aspect of Osborn's questions in a brief brainstorming session, so no aspect is lost along the way (Osborn 1953).

15.3.3 Idea Generation: Analytical Methods

Analytical methods attempt to systematically consider every aspect of a problem and analyze every potential solution.

Developing New Products with High Investment Costs: Morphological Analysis

Background

A morphological analysis is a method for systematically organizing and investigating the total set of relationships contained in a multi-dimensional, usually non-quantifiable problem. The necessary diversity of ideas is generated by

- splitting complex facts and circumstances into separable pieces,
- varying the gestalt of elements,
- combining elements into new entities and solutions (Schlicksupp 2004).

Course of Action

After analyzing, redefining, and eventually abstracting from the problem, **its properties are identified**. Properties can be understood as the attributes that are shared to varying degrees by the different solutions. They form the common basis of all solutions. To identify such properties, we recommend asking the following questions:

- In which attributes, components, or elements might potential solutions differ from each other?
- Which solutions allow for differing values and forms?

Properties are then compiled in the first column of a matrix (Table 15.2). After that, all possible values of each property are identified and its manifestation is captured in the respective line. Every possible combination in the matrix displays a

Table 15.2 Example of a morphological analysis for a lamp

Properties	Values					
Power supply	Battery	Solar	Generator	Gas	Flame	...
Size	Very large	Large	Medium	Small	Hand held	...
Style	Modern	Antique	Art Nouveau	Industrial	Ethnic	...
Material	Metal	Concrete	Glass	Wood	Plastic	...
...

potential solution to the problem. These solutions can be marked with a zigzag line to support the detection of good solutions. The process of identifying the best solutions in the matrix requires the mental simulation of many combinatory possibilities.

The most crucial part of a morphological analysis is the **identification of the properties**. To help detect useful properties, we recommend functional analyses, diagrams, and systematic preparation with visual tools of all kinds. We also recommend starting off with a list of potential properties which can be discussed and redefined after some consideration. Furthermore, the properties must be logically independent from each other, applicable to every potential solution and, of course, relevant. Conducting a morphological analysis therefore requires expert knowledge in the area of the problem. Due to its ability to reduce complexity and boil down the huge amount of data that needs to be assessed, the morphological analysis is particularly useful for solving very complex problems.

Optimizing Products and Processes: Attribute Listing

Background

Attribute listing is a very useful method when a specific **product** or process needs to be **optimized or requires further development**.

Course of Action

Similar to the morphological analysis, the problem is now analyzed according to the attributes that are listed in the first step. To systematically identify points of improvement, all the listed attributes are then modified in every possible way. The proposed modifications are then contrasted as categories of desirable versus undesirable attributes. Following this, the desirable attributes are analyzed regarding their usability and feasibility. The complete process is applicable to groups as well as individuals (Crawford 1964).

15.3.4 Idea Evaluation

- ▶ It is common that individuals or work groups tend to evaluate ideas overoptimistically. This positivity bias occurs when the same person or group evaluates different ideas, resulting in a lack of risk awareness. Tools for the effective and systematic evaluation of ideas help prevent this bias.

People tend to prefer the music of their generation to the music of their parent's generation. What needs consideration here is that evaluation patterns need to be redefined in the same way as creative thinking skills are trained. Changing the criteria for the evaluation of ideas changes the environment and culture for creativity (cf. Simonton 1999).

Lowering the Risk in the Planning Stage: Negative Brainstorming

Background

To foster critical thinking and nuanced evaluations in a team, negative brainstorming is particularly useful when **examining a proposal**.

Course of Action

First, negative brainstorming is used to detect all possible negative aspects and consequences of the proposal. Next, four or five exceptionally negative points are selected. At least one of these should be quite bizarre. The team then examines how the plan has to be modified, so that the negative aspects are reduced or eliminated.

Facing Multi-dimensional Problems that Require More Than One Perspective and Entail Conflicts: DeBono's Thinking Hats

Background

The Six Thinking Hats help to examine suggestions, ideas, or procedures from many different perspectives. The procedure has been formalized to ensure that no perspective is excluded from this process (de Bono 1992).

Course of Action

The participants put on imaginary hats one after the other and evaluate the ideas from the hat's specific perspective. Six distinct perspectives are explored and assigned a color (Table 15.3). The colors allow for a more complete and elaborate delineation of each perspective. The goal is not to switch between the different perspectives, but to guide attention to **one perspective** and explore it in full.

Every hat should be worked through properly, which requires about 5 min per hat or 30 min in total. An informed decision is then possible based on all six perspectives. The order of the hats should be adjusted to the demands of the problem. Nevertheless, we recommend starting with the white hat, since it delivers

Table 15.3 Colors and meanings of the six thinking hats (de Bono 1992)

Color	Perspective
White	Information: Considering purely what information is available, what are the facts?
Red	Emotion: Positive and negative gut reactions or statements of emotional feelings
Yellow	Good points judgment: Focus on identifying the benefits and advantages of an idea, seeking harmony
Black	Bad points judgment: Focus on identifying flaws or barriers, seeking a mismatch, critically examining ideas in the manner of a devil's advocate
Green	Creativity: Statements of provocation and investigation, seeking alternatives and other options
Blue	Thinking: Facilitating the process, keeping an overview, organizing the thought process, summarizing and concluding; coordinating the other hats

all the facts, which then allows for a more informed assessment of the other perspectives. With new ideas, the yellow hat should be followed by the black one, so that negative statements do not discourage the group or exclude an idea too soon. We see a great advantage in the Six Thinking Hats, as they **provide the opportunity for everybody to keep face** throughout the entire process. There is no need for anyone to justify their statements, since the hats ask about the pre-defined statements (de Bono 1992).

15.4 Conclusion

How can creativity be enhanced in project teams? In this chapter, we explored the approaches used for **fostering creative thinking skills**, which generally address specific knowledge about the application of methods and tools for creative thinking to support the diversity and originality of the resulting ideas and thereby the quality of solutions and innovation. Can creative thinking be trained? Without doubt. Creative thinking skills can be practiced and taught. In this respect, we recommend working with experienced trainers and facilitators to enhance one's own or a team's creativity. Furthermore, to effectively use and apply the methods and techniques presented here, two aspects are essential for the success of any creative endeavor:

1. A repeated effort to use the methods in everyday work and projects and
2. A creativity-enhancing environment.

In detail, it means that to achieve creative ideas and effective innovation within a work group or project team, we recommend (following Sternberg 2002) redefining problems, questioning and analyzing assumptions, encouraging the generation of new ideas, recognizing the ambiguous role of knowledge and expertise, identifying obstacles, cross-fertilizing ideas, rewarding creative thinking, allowing mistakes, encouraging collaboration, seeing things from others' points of view, accepting responsibility for success and failures, maximizing the person-environment fit, and continuing to allow intellectual growth.

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Part V

Managing Special Challenges: Risks and Crises, Diversity and Distance

Wolfgang Salewski, Lutz von Rosenstiel, and Rod Zook

Abstract

Managing risks and crises in projects is about dealing with situations or incidents that might detract from or even call into doubt the project's success. An appropriate response focuses to a large extent on the established principles of successful management for dealing with the issues at hand and their specific, individual factors. Modified accordingly, such appropriate responses used in everyday situations also prove advantageous when faced with unusual situations.

16.1 Risk and Crisis: Attempting a Differentiation

In the recent past, organizations have been overrun by systems claiming to work as “**risk management**”. Their implication is that they provide managers with adequate tools for not only recognizing, but actually mitigating risks.

Risk management has promoted a tendency towards a rather administrative approach to discerning and assessing risk. In doing so, it has offered managers the option of avoiding deeper interaction with the actual risks. The criteria for risk evaluations have been reduced to the probability of a risk's occurrence and the ability to minimize its damage, thus providing a (deceptive) sense of security for the people in need of such reassurance.

W. Salewski (✉)
Munich, Germany
e-mail: wastian@inforp.com

L. von Rosenstiel
Ludwig-Maximilians-University Munich, Institute for Psychology, Munich, Germany
e-mail: wastian@inforp.com

R. Zook
Denouement Coaching Group, Munich, Germany
e-mail: rz@dcgp.co

The end result was the addition of another system, with additional administrative effort, but without providing much immediate relevance.

Risk management in projects is altogether a different beast. Although it can be studied and implemented according to the standard models of risk management (probability of occurrence and the expected extent of damage), it should primarily deal – extensively and practically – with concrete risks in specific projects and describe them in as much detail as possible.

Above all, risk management must take on board the expected risks caused and intensified by the group dynamics inherent in projects (Lu et al. 2012). Projects unfold under different conditions and require different levels of cooperation than normal leadership structures. This makes them unique and occasionally provides the opportunity for personal development.

On top of that, the selection and definition of possible **risk factors** is more a problem of individual judgment (Kahneman and Tversky 1996, 2000) than a strictly objective, issue-oriented process. It is, at heart, about the personal evaluation of expected futures and their impact on the project.

16.1.1 The Difference Between Risks and Crises in a Management Context

Risks are distinctly different from crises in that, depending on the type of project, they are partially predictable and can be mapped out to some extent. Crises are always sudden and unexpected. If they had been anticipated, it would have been possible to adopt measures to prevent them and stop them from emerging in the first place.

It is therefore clear that **managing risks** is significantly different from the day-to-day challenges of leadership. Then again, management is all about creating the necessary distance from the administrative burden and courageously taking reasonable risks for the good of the company or the individual project.

Leading a company requires people to face various risks on the path into an unknown future. Those who cannot or who refuse to do so are ill-suited as managers and better suited for supervisory roles, such as auditors' or administrators' jobs. Both are career paths that are tailor-made for risk-avoidant personalities.

Managing crises differs significantly from managing risk. Since crises generally surface suddenly and without warning, it is virtually impossible to prepare for the specific issues associated with their appearance. One simply cannot know all that could happen. All that one can do is to develop standard approaches for avoiding the worst mistakes as soon as a crisis rears its head to prevent its escalation. Having a prepared approach ready provides standards for structures and methods that help deal with the crisis when it does come.

As a rule, crises that emerge in projects develop because the actors either treat each other or the issues at stake carelessly or do not realize that they might be downplaying the significance of the issues or the other participants unwittingly and to such an extent that a crisis can break out suddenly and without warning. In

reality, such a crisis is often not about any particular issue as such, but rather about the **various, unspoken assessments of the situation**. These assessments can pertain to the substance of the project or alternative perceptions of the actors in it.

Depending on whether such experiences are viewed and experienced as a crisis, they might lead to an inability to take action. At that point, having practiced responses ready helps recognize the nature of the crisis and seize the opportunity to introduce changes.

- ▶ While managing risks is part and parcel of leadership and does not represent a particular challenge in projects, crises demand an increased analytical and judgmental effort and the quick definition of responsible alternatives.

16.2 The Background and Relevance from a Psychological Perspective: Risks and Crises in Projects

By definition, projects are limited in scope and deal with defined issues within a specified timeframe. They either target change or try to address completely new sets of issues. In that sense, projects are always subject to risks, since they are aimed at a more or less unknown future in which the project's object will have to prove its worth.

16.2.1 Factual Risks

A significant, but often unrecognized risk is represented by the temptation to make **quantifiable projections** into the future while working with unknown developments in the context of an uncertain road ahead. However, as soon as such projections are made and the numbers printed out, they begin to be treated as facts, although they essentially remain assumptions. The curious situation can arise that a project dealing with the future development of a company results in quantified recommendations that take root in the corporate plans and are posited not as the assumptions they are, but rather as future facts.

- ▶ Figures often conceal hypotheses about the future which are motivated by hopes or fears. If this is not clearly articulated in the project assignment, the actors will run the risk of being either too optimistic or too pessimistic in their plans. The resulting quantitative conclusions are compellingly logical and yet consistently misleading.

Human beings have the gift of overcoming their own uncertainties with objective arguments and self-construed facts which are then consistently believed by

them. If that faith releases a significant amount of energy, it might enable people to actually reach their goals to the extent that was achievable in the first place.

If their prognosis does not come to pass, people rarely tend to doubt the facts as they have construed them. They rather seek the reason for the failure beyond the realm of their own responsibility (Weiner 1986). They find ample opportunity in the form of **projecting** onto other people, pointing out external conditions, or **rationalizing** with seemingly reasonable explanations.

16.2.2 Judgment Risks

The second significant risk lies with the people who work on projects, since all of their decisions about substance are simultaneously modeled on their **personal expectations** (De Dreu et al. 2008). First, it is possible that important issues are not decided on, because **uncertainty** about their consequences rules the day. Second, people may make the wrong decisions, because they believe the project needs to be dealt with in a specific manner. No one is immune from such judgments, because the issues themselves often play an only secondary role in projects. **Personal expectations** about the substance of projects and their goals are usually more important. They frequently end up determining how the issues and the course of the project are evaluated.

The actual motivation of the participants plays an important role in balancing risks and personal expectations. In order to be able to assess the risk in advance, it is necessary to ascertain whether the actors or at least a majority of them are biased for success or indeed for failure (Heckhausen and Heckhausen 2010). People who are **motivated by success** react and make decisions based on their hope for success and for moving forward. They view **risk as an opportunity for change**. Their personal pitfall lies in assessing the facts too **optimistically**.

People who **focus on failure** make decisions and exhibit behavior based on a fear of failure. They are more cautious and uncomfortable with facing risks. They run the risk of **not recognizing opportunities** which might seem apparent to others. Occasionally, they will accept **extremely high risks**, because failure in such situations possesses a built-in excuse which protects their self-image.

- ▶ Both forms of motivation – either extreme success or failure – represent a risk for projects. In one case, people have too much confidence; in the other, they tend to err on the side of caution and are likely to miss opportunities for change.

It is critical for judgments to first clarify in the **project team** – even before processing the risks inherent in the project – how the expected behavior of the team and its members will impact the project and the related risks. That includes clarifying the individual assessments and their impact on individual behavior and cooperation in the project team. This is most effective if **all team members** are

given adequate occasion at **the beginning of a project** to voice their personal opinions concerning the prospects for success and **to articulate the risks and opportunities** they personally anticipate in the project. It is equally important that the conversation includes details about what the planned cooperation really means for each member of the project team.

16.2.3 Leadership Risk

A crucially central aspect of any project's success hinges on **clarifying the role of leadership** (Foti and Hauenstein 2007) in the project team. In this respect, it is necessary to eliminate the idea that project teams function on some sort of democratic basis, with the actors attempting to reach a compromise after much deliberation.

- ▶ Exceptional projects benefit from a widely accepted leadership personality, who has the necessary expertise and is credited with the required social skills to lead the project. They are expected to lead the group to a result that is accepted by all.

Risk management requires that everyone involved speaks comprehensively about the **expectations** they have vis-à-vis the project team leader. **Clarifying potential roles** is possible here, but completely personal judgments will also become clear. In the course of the project, this will be either advantageous or detrimental to the whole effort and its results.

16.2.4 Risks in Substantive and Dynamic Assessments

There are two categories of risk management in projects:

Categories of Risk Management

1. The risks arising from the project group's leadership and the individual protagonists' assessments of the issues and the other participants.
2. The analysis and understanding of the factual risks arising from the project itself or from the results the project may engender.

In all projects, it is the **subjective assessments** of the actors, who tend to experience and communicate these issue-oriented appraisals as facts, that have a long-term impact on the process. Initially introduced as **projections** or **rationalizations** in debates, they are later treated as facts. This leads to **pseudo-discussions** that are generally not relevant for the project's success. A significant

risk for the project emerges as the debate shifts away from the core of the issue at hand and develops its own dynamics and perhaps even reaches conclusions that neither have anything do with the original issue nor serve the project. The primary problem here is that the actors, or at least some of them, are not aware of the difficulty, because they subjectively assume that they are talking about the issue, while they are actually talking about various personal appraisals, which they have elevated to the level of fact.

Therefore, it is critical to create clarity at the beginning of the project and **emphasize the difference between actual facts and personal judgments** about those facts in order to raise that awareness among everyone involved.

Example

When a project team member claims that the most critical factor in the success of the project lies in giving the project client a specific suggestion, this can be viewed as a guaranteed rationale in favor of a specific decision. The team member sends the message that the project owner's perspective is important and that he will try to avoid as much risk as possible. That individual can then be expected to remain true to these two priorities for the remainder of the project. As long as the rest do not co-opt that opinion, it may well mean that the group will view the individual as an opportunist or naysayer.

That is critical for the entire project. If the others accept this perspective, everyone will tend to be client-oriented and respond cautiously, thereby significantly reducing the **value of operating as a project team**. If they view things differently, however, **conflict** is guaranteed.

The social psychologist Janis (1972, 1982) analyzed documents in a study on the politics of **group decision-making processes** in the Kennedy era. The focus of this investigation was the group dynamics in the administration's short-term advisory and decision-making bodies, which can be considered projects in some aspects of how they work. He revealed typical group processes, which he termed "**groupthink**" and which finally led to **wrong decisions** (e.g. the attempt to drive Castro from Cuba by invading the Bay of Pigs, expanding the Vietnam War). In addition, **rules** were developed to help project leaders or participants work against these dysfunctional processes. (Table 16.1; Towards better problem definitions and assessments of ideas in see Chap. 15). The typical disruptions as well as ten guidelines that make dysfunctional group processes less likely are summarized and shown in Table 16.1.

16.2.5 Crises in Projects

Crises are situations that **appear suddenly and unexpectedly** and that cannot be tamed by most standard management methods. They call for clearly established **standard procedures** that can be consistently employed when a crisis breaks out. If

Table 16.1 Disruptions in group decision-making processes and approaches for improvement

Disruptions (Janis 1972, 1982)	Means of improvement (Tjosfold and Field 1985)
Illusion of invincibility leading to unrealistic optimism	Awareness of the dangers of groupthink
Collective rationalization (pseudo-reasons)	Caution of group leaders when taking a position
Belief in the moral justifications of shared approaches	Encouragement for group members to express concerns and doubts
Stereotyping of outsiders	Opportunity of a group member to play the role of Devil's Advocate
Group pressure against arguments that question the mutual illusion	Possible creation of a sub-group to process a competing perspective to an important aspect
Internal censorship of non-conformity to group consensus	Careful analysis of the possibilities and intentions of potential competitors and opponents
Overestimation of the unity within the group	Renewed re-consideration of the (temporary) unity behind a solution
Self-appointed monitors protect the group from disruptive information that could infiltrate from outside	Inclusion of external observers and critics
	Soliciting of opinions from trusted colleagues
	Introduction of a parallel working group to deal with the same problem

these standards do not exist and no one is available who happens to have the skill to improvise initial, effective responses, the crisis will develop its own dynamics and can lead to disaster.

- ▶ Crises in projects are extreme threats to the continuation of the project and might threaten the participants themselves. Since they are not predictable and often triggered by external conditions that are not directly related to the project, they also have little to do with planning or initiating the project at all.

It is extremely difficult to develop a comprehensive description of the possible crises that develop in projects, as there are a wide range of project types dealing with various issues and priorities and carried out by a variety of players for different clients. When **project members** are the **cause for such crises**, this usually refers to events in the **personal environment** that have nothing to do with the project. Only rarely can crises be traced back to **individual quirks** that could not be identified at the beginning of the project.

They can, however, develop out of the **group dynamics** if these remain invisible and not identified as fertile ground for later crises. In addition, they are often transported into the project from the outside and often occasioned by **unforeseen events** or **intentional disruptions**.

16.3 Footholds for Improvement

16.3.1 Risk Prevention

What then does risk management mean in projects? It means the prevention of risk, and the intervention in risks, if prior prevention was not completely effective.

Checklist. Risk Prevention

- What is the exact definition of the project?
- What are the goals?
- How realistic and focused on its goals is the project?
- Are the project's objects and the assignments and targets equally comprehensible for all participants and interpreted similarly by them?
- Which employees have both the expertise and personal qualities to be involved?
- Why are they motivated to participate?
- What personal interests do they have?
- How are those interests apparent and what opportunities and risks are involved?
- Who has the skills to lead the project?
- What about the level of expertise and the social skill of the project leader?
- How readily do the participants acknowledge those components in the leader?
- What additional knowledge is available concerning the composition of the project team?
- What rules exist for working on the project?
- What rules are there for risk prevention?

Group Dynamics Risks

It is possible, for example, to channel the risks inherent in **group dynamics** (Table 16.1) in advance of the project by **creating the project team** deliberately and carefully. Doing so means paying careful attention to establishing transparent **roles in the team**. The team leader responsible for the group plays the most important role in this. It is not sufficient that the leader believes he or she exemplifies the necessary expertise or social skills; the team must also express their confidence.

The **team's confidence in the expertise of the project leader** is necessary for effective progress on the issue at hand. Project leaders may not possess the best expertise, but they must be able to pull the various aspects together to help a professional result along.

Trusting the leader's interpersonal skills includes confidence in his or her ability to **recognize and integrate the various perspectives and expectations of the team members**. In addition, an interpersonally skilled leader needs to actively include everyone in working with the issues and integrate their contributions into a **shared result**. Significant risks to the project will arise when the project leader possesses technical, but not interpersonal skills.

No team embarks on a project without negotiating its members' **roles** (Harrison 1971). If that is not done openly, it will happen behind the scenes, conflicting with the issues actually at stake in the course of the project. At that point, it becomes extremely difficult to determine whether the conflict is about the issues themselves or actually rooted in the negotiation of the members' roles. At any rate, an **emotionally taxing disruption** of the project will be the result.

This danger can be mitigated, as the recommendation suggests, by looking intentionally into the abilities of the participants when **planning the project** and only engaging a project leader who exhibits both skills after specific examination and possible discussion. Making the correct assessment provides a better sense of confidence in the project team's ability to work effectively from day one and minimizes the risks of covert role clarification.

Issue-Oriented Risks of Project Work

The rather issue-based risks of working in projects lies, at least to the extent that a meaningful distinction is possible at all, in a clear definition of the task and the intended results for the team as well as clarity in that everyone involved in the project has understood both the task and its purpose.

- ▶ In this regard, it is important to precisely define and describe [Assignment Description] the task in operational terms at least: Who is supposed to do what with whom, how, by what date, and with what result?

Everything that has been carefully described here is also subject to the risk of **different interpretations of the issues** by the individual members of the project team. This can result in the players talking past each other without being aware of it, because they all believe they are talking about the issue and not about their differing interpretations.

If a project is introduced to increase efficiency in a company, it can lead to very **different understandings** of what is meant by this increase, by efficiency, or by which aspects of the company should be included. It is therefore preferable to precisely **define the project's scope and purpose** from the beginning.

- ▶ The project group is assigned to prepare a proposal for increasing output by 10 %, while maintaining the error ratio in the coming year, or to propose how to halve the percentage of errors within 6 months, while maintaining the same output.

Risks can then only materialize if the project mandate is **unrealistic** and the players do not have the confidence to openly address it or if individuals suspect a **hidden agenda** behind the precisely defined mandate and then attempt to verify their suspicions during the project.

16.3.2 Risk Intervention

Whenever all of these questions related to risk prevention are consistently worked through, no additional risks should actually rear their heads. However, they can emerge because **projects are aimed at an unknown future** and may lead to new insights as they run their course; insights which may then also entail previously unknown risks.

The issue here is the need for a precise **risk analysis** that determines what has changed in the course of the project and what steps have been planned as a result. That can mean that **new insights** materialize during the project with critical impact on the project itself or on its goals. This leads to a renewed need to critically review all prior assumptions, to possibly re-define the project, or to adapt the project target itself. Under no circumstances should it be business as usual when faced with unplanned risks, simply by entertaining the hope that they will somehow be mitigated.

Group dynamics make it problematic, when the **project leader's authority** is called into doubt or unexpected role dissonances emerge. This represents a particularly high risk, since the resulting conflict can disrupt the project for the long term or even call it into question in its entirety. In that case, it is necessary to temporarily put the project on hold and clarify the roles within the project team. This only succeeds, however, if one is able to separate the issues from the roles for that time in order to avoid blurring the conflicts with arguments about issues.

The principle that conflicts do not arise out of the contents of the project is valid here as well. Rather conflict crops up in the **contrasting assessments of the situation** by those involved in the conflict, as they do not respond to the issue, but to the emotions surrounding the situation. If the differences were only based on a divergent understanding of the content, it would be possible to deal with it on an objective basis. This is extremely complicated, however, because many people are convinced that they are only interested in the issue. In doing that, they stop themselves from accessing their own personal judgments. **Coaches** and organizational-psychological process facilitators can be helpful here, by supporting the project leader in **skill development** or in **clarifying his or her own inner role conflicts**, or empowering the team in **improving their communication** or by reducing tension through **conflict mediation**.

16.3.3 Crisis Prevention and Crisis Management in Emergencies

Given that crises are not predictable, focusing prevention on the actual issues or on people's behavior will not suffice. Instead, a **structured and procedural crisis response organization** comes into play. This is largely abstract and makes **organizational and decision-making models** available that are appropriate for quick evaluations, the definition of alternative options, and consistent decision-making processes in order to respond immediately to such a crisis. The organization, a so-called **crisis unit**, must be defined before a crisis erupts.

The **operation of the crisis unit** should be practiced before any crisis actually occurs, both on a very abstract issue level and in terms of concrete experiences in the training. It is not important to solve a hypothetical crisis, but rather to develop personal and issue-oriented, **concrete alternative approaches**, which unpack serious, practical possibilities developed to facilitate quick and comprehensive reactions and, above all, to avoid fatal mistakes.

- ▶ Crisis prevention includes establishing clarity among all project participants that the crises have nothing to do with standard management methods and can certainly not be mastered by them.

If there is no clarity or agreement on this front, crises will not be met with the necessary thoroughness either by the organization or by its leadership. On the contrary, they will become the plaything of **undefined roles and group dynamic processes**. This is particularly frequent when the person responsible for leading the project is **virtually deprived of power** in the face of a crisis, because the project client or a supervisor believe they need to actively get involved in crisis management. In reality, this approach is the rule, rather than the exception.

The Crisis Unit

In the face of a crisis, the established project organization with its defined roles and allocated tasks is **replaced by a crisis organization**. Roles are now replaced by clearly defined functions that have proven themselves capable of coping with previous crises. A focus on group dynamics and decision-making processes is replaced by **formalized assessments and action**:

- Situation analysis
- Alternative approaches
- Decision-making.

The **assignments in a crisis unit** are related to the requirements arising out of the issues the project deals with as well as workflow requirements.

Crisis Unit Leader The leader bears the **most important responsibility in the crisis unit**. That responsibility can also be lodged with the established leadership person in the project, if they personify the necessary **technical skills** in addition to the **analytical tools** to understand and evaluate the situation as well as exhibit reliable **decision-making qualities** for focusing the analysis and conclusively implementing the correct responses. The crisis unit leader guides team members by drawing on all of their technical expertise and understanding of the issues. The leader challenges all of them to take positions and draws out **concrete responses**, which are then tested both for their effectiveness and the risks involved. In that way, the leader is able to make quick decisions and implement them consistently. It is necessary, however, to ensure that these **decisions are accepted by a majority** and confirm that those who may have a different understanding can at least tolerate the decisions.

- ▶ The crisis unit leader must be chosen carefully and in good time. Everyone involved in the project, the project client and all supervisors must be certain that the correct person has been selected.

If this is not absolutely clear, certain patterns of behavior will emerge soon after a crisis breaks out that make it impossible for the established leader to exhibit effective leadership. Decisions will either be **critically challenged** from the outside or upper management will attempt to become a **behind-the-scenes player in the crisis unit**. Additional **parallel structures** might be established that also pursue crisis management. As a result, the actual crisis unit is unable to function. This implies that advance preparation and the allocation of leadership functions is critical. When the crisis strikes, it is too late.

Specialists An additional, important role is played by specialists; the role can also be carried out by several individuals with varying areas of expertise. Their role is to be available and provide **objective, expert advice** by comprehensively and accurately presenting important aspects of the crisis intervention. The expert is, however, usually not the decision-maker, since not only the objective, issue-related aspects, but also the consequences and repercussions of the decisions need to be considered during the crisis.

Communicator A third function is that of communicators. Their task lies in **raising awareness** for the impact of the decisions to those outside the crisis unit and in making the prescriptions understandable for that external environment, while not creating new crises as a result of how they portray this.

Behavioral Experts A fourth function is assumed by behavior experts, such as psychologists. They are helpful in advising the crisis unit about how specific issue-related decisions can be brought to bear internally as well as externally; they are also available to make recommendations vis-à-vis behavior-related questions.

Depending on the kind of crisis or the project itself, additional functions, e.g. **legal counsel** or a **technical support expert** can be engaged.

In order for the **crisis unit to really be able to function**, there should be no more than **5 or 6 people** on the team. If more are needed, they can be active outside of the core unit. Their insights can then be integrated as needed.

The crisis unit needs **physical space** to carry out its work **without disruptive external influences** in order to reach their goals with the intensity and unity required to make quick decisions. It is equally helpful to create all the **technical means** to communicate effectively and efficiently with each other and with the outside world.

Decision Management During the Crisis

Decision-making in a crisis is carried out according to the following model: **Analyzing the situation**, discussing alternative responses, reaching the decision. The leader of the crisis unit structures the decision-making process according to this plan. Instead of simply presenting the contributing factors of the situation to an open discussion, the leader takes the initiative and actively directs developments. Initially, every member of the crisis unit is asked to present their own **view of the crisis and its causes**. The leader then summarizes all the contributions and subsequently asks for additional assessments. This continues until everyone has exhaustively examined the problem at hand. Finally the leader summarizes everything once more, supplements it with his/her own analysis, and formulates a statement that is comprehensive and binding. At this point, it is mandatory that no additional suggestions for solutions or reasons for a decision be put forward or discussed.

- ▶ A sound analysis of the situation that is shared by everyone is the foundation for a quick and mutually accepted search for ways to overcome the crisis.

In the second round, the leader of the crisis unit **collects all the ideas** the members of the crisis unit deem viable for solving the crisis. All of these ideas are accepted as suggestions and maintained as such. There is **no discussion of the issue, let alone criticism** in order to avoid limiting the range of ideas. An important aspect of crisis management is valid here in that a crisis unit is able to work very quickly if all the members feel free to express their ideas without being restricted in any way.

The third phase leads to the crisis unit reaching a **decision** that includes the suggestions it has made and believes suitable for overcoming the crisis. It is important for the crisis unit leader to **clearly structure the ideas** and, drawing on the help of the group, subject the ideas to an **issue-oriented evaluation**. The leader recapitulates the result in terms of a decision and asks the communicator to formulate it appropriately, so it is understandable outside of the crisis unit. This message is aimed at all of the other project team members who do not belong to the crisis unit, the project client or supervisor, as well as a defined public audience that has a connection to the crisis and might be impacted by it.

- ▶ Experiences in crisis management have shown that whenever too little time is invested in analyzing the situation, only few creative ideas will come forward when talking about concrete alternatives. Later, when it is finally time to make a decision, additional aspects are raised for discussion, thereby preventing the crisis unit from making a final decision. These new aspects are an indication that the analysis was too quick or too superficial.

Additional Aspects for the Success of a Crisis Unit

One other concern still needs to be mentioned here. Having the leader of the crisis unit drive the decision-making process consistently and dynamically has nothing to

do with an authoritarian leadership style. That would be the case, if the ideas from the group were not integrated and the leader's own assessments were imposed on them. Those who want to do so do not need a crisis unit.

The success of the crisis unit in practice depends on it already being created **prior to a real crisis** and on the members having had the opportunity to **practice and reflect on their behavior in simulated crisis-like situations**. This also provides the opportunity to assess and decide on who is really suited for such a task force. If there is the slightest doubt, it is better to flag the person in question as not suitable and not wait until a crisis forces one to make that call.

The need for a crisis unit to be in place with an outline of its assignment can be seen in the following case study.

A company involved in pharmaceutical research decided to establish a project, tasked with developing the company's future strategy. The need for a strategy became apparent as a result of a certain lack of direction in the company's own research division. The management board was presented with two different approaches:

The board member responsible for research outlined a proposal based on existing methods and designed to create a scientific approach, responding to projected future needs, that he planned to **introduce from the top down**. This **experience-based model** presumed that it is possible to logically deduce the opportunities and risks associated with the future by utilizing prior experiences and insights. Above all, the proposal emphasized the need to allow the specialists to develop the strategy for the future, since they had access to the most significant level of ability and experience in a research-driven sector.

The central "strategy development" department proposed a procedure that drew on the experience of all of the affected areas of the company through **well-managed interviews**, which were then to be compared with insights from sector-specific market research and integrated in a binding strategic concept, emerging from the **bottom up**.

The management board felt it would be attractive to implement both methods in a comprehensive attempt to create a model for the future and develop the results into a type of synthesis of both concepts, which would then be established as the future strategy. The question of whether a top-down or a bottom-up approach was more promising was left to market forces. A **steering committee** was formed with members from each group and instructed to regularly update both groups about the project status in the other group.

As a result, there were two project teams with different methods and composition:

- The research leader's group was composed of five active division heads from the various research sectors; all six members possessed doctorates and were experienced scientific experts.

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- The central office “Strategy Development Department” operated with five relatively young employees from a range of disciplines, but lacked any researchers.

It is not surprising that such a procedure did not remain without conflict. It was surprising for many, however, how quickly the characteristics of the various personalities led to a crisis. What happened?

The decision-makers in the company subscribed to the creed that thesis (top-down) and antithesis (bottom-up) would produce a synthesis (ideal procedure) and overlooked the fact that such constructions tend to produce symmetrical communication and therefore lead to conflict-laden interactions, **creating irreconcilable positions.**

The research directors found it an extremely painful experience to submit to a strategy that was developed by young people with varying degrees of experience and without any actual researchers. It caused one of the division heads to say: “A research company cannot subscribe to a strategy created by the marketing department. It is a question of expertise. That expertise knows what already exists and what is necessary.” But instead of then concentrating on a scientifically based strategy, the specialists hurried so as to present their outline first, in order to gain a time advantage. That fact made the board chairperson suspicious, who had the strategy paper tested by a neutral institution. The result was devastating.

The central office “Strategy Development Department” displayed much respect for the specialists on the one hand and attempted to draw them into their own deliberations. This resulted in many symmetrical discussions and ended with the statement of the research head: “The worst thing that can happen to us is meddling in independent research.” These discussions did not bring the project forward. Rather, those in charge wasted much time with full-scale project planning and were still in the investigation phase when the researchers’ proposal eventually failed.

The crisis came to the fore with one group having no purposeful strategy and the other having none at all. The company ended up without a game plan, and its managers had demonstrated their inability in the plans and the decision-making process, but above all in the end result. An atmosphere of crisis spread since commercial success, especially for companies that rely on long-range operations, depends on having a reliable and consistently focused strategy that provides employees with a reliable frame of reference.

Since the company did not have access to its own crisis management tools, it looked for an **external advisor** who could help as quickly as possible, create a sense of stability in the company, and offer the employees some orientation.

A crisis unit was created, consisting of six employees from the company’s various divisions; it included a board member, but not the chairperson. Crisis

(continued)

unit members were introduced to the work of crisis management and were also clearly told that there was no such thing as a correct or incorrect strategy. They were told that it was much more important that the strategy be supported by as many participants as possible and that it could continue to be adapted to changes in the company's environment. The **members of the crisis unit** selected a leader from **among themselves**; a leader they believed would be able to develop the largest number of shared aspects for a strategy with the team. That leader was chosen neither from research nor from the strategy department. The external advisor did not serve as a member of the crisis unit.

An analysis of the situation revealed that the company had serious deficits in its market orientation and that its research had only focused on positive research results; test series that ended negatively were neither recorded nor publicized. This meant that they missed a huge opportunity to learn from mistakes. The authority and ability of the research head was challenged openly – not in terms of his scientific expertise, but in his role as a leader.

The crisis unit submitted the following **suggestion to the board**: A strict market analysis of the current research priorities, reduction of the research scope, use of negative test results for the further development of research, re-organization of the entire research area with a view to market factors, and utilization of ground-breaking research from universities and research institutes in the future. This resulted in the definition of a corporate strategy that included all relevant company and market data and was ratified by the management board.

16.3.4 Evaluating a Crisis

Approach to Learning and Causes Since crises are unusual situations or events, they also provide the **opportunity to learn** how to mitigate the intensity of the risks and conflicts they engender. In that regard, it is crucial to intensively process the causes of a crisis after it has been overcome, to ask why the initial signals were not noticed in time, and to understand the consequences the crisis had for the project (in terms of lessons learned).

Approach to Leadership and Cooperation in the Crisis Unit In addition, it is necessary to understand how the crisis unit was initiated, how it functioned, and what role its decisions played in overcoming the crisis. The question of leadership and cooperation in the crisis unit must also undergo **analysis**.

Retrospective Analysis as Prevention Analyzing a crisis in retrospect plays a role in preventing future crises. Here, it is crucial to **avoid the tendency to gloss over the situation** and only draw on those aspects of the decisions that were positive. That is an understandable bias, but it is much more effective for dealing with future crises to look seriously at the **weak points** and the tangible **errors in crisis management**.

- ▶ Whatever is suppressed now will appear again in future crises and will have a negative impact on the organization's ability to cope with them.

The composition of the crisis unit team and the efficiency of the individual members should be openly discussed in order to also draw the correct conclusions from those experiences.

16.4 Concluding Observations

Effective project management is focused on the issue and aware of the people affected by it. The people involved in project management are usually extremely knowledgeable, as otherwise they would not be needed, and they are well-versed in project work. In addition, they are willing and able to understand and live out their respective positions and roles in a project team. These are all **central requirements for being included in the project team**.

Managing risks rests on the same requirements and is particularly relevant for **forward-looking** projects, which will certainly entail risks, since no one can completely anticipate the future and project work relies on assumptions that will only later be revealed as more or less correct.

- ▶ As much as possible, those involved should endeavor to distinguish between facts and assumptions, resisting the temptation to elevate their assumptions to the level of facts through calculations and models. Prognoses are not facts!

It is only possible to portray the future in terms of probability or potential. The degree of likelihood is calculable, but that should not simply be accepted as fact. Even a carefully calculated **probability is not a fact**.

Organizations with the correct **project structure** genuinely coupled with a conventional **leadership culture** have already taken the first step towards managing risks. The primary factor that remains is facilitating a **flexible** project team, which is able to deal with new insights arising from the project itself and **willing to revise** decisions that have already been made while cautiously discarding much-loved preconceptions.

Managing crises means nothing more than transitioning from an **open culture of leadership** into a **rigorous leadership model** and maintaining that until the crisis has ended. Crisis management does not require a special skill; it is based on **clarity, quickness, and consistency** and forces those caught up in crisis management to adopt a fitting style. Such a rigorous approach is only suitable for specific situations. It is not appropriate for management in general.

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Ulrich Hoessler, Walter Sponfeldner, and Douglas L. Morse

Abstract

The role of international teams in the workplace continues to increase as they assume a more central and standard role in developing, producing, and distributing products and services of all kinds. International cooperation necessitates **intercultural cooperation**. We highlight this first by describing a case study that exhibits typical challenges and processes in intercultural cooperation. The chapter then turns to investigate how culturally-determined problems that arise from the case can be interpreted from a **psychological point of view**. Finally, we offer ways of optimizing intercultural cooperation in international teams.

17.1 The Problem: Cultural Differences in International Teams

Consider the following situation: A German company needs U.S. American expertise to develop a product that is to be produced in China and sold to a Korean customer. The team in charge of this project consists of representatives from all the nations involved. Multicultural teams such as these are far from extraordinary in today's global economy.

U. Hoessler (✉)

IKO – Institut fuer Kooperationsmanagement, Regensburg, Germany
e-mail: ulrich.hoessler@gmail.com

W. Sponfeldner

Osram AG, Chamerau, Germany
e-mail: wspn@me.com

D.L. Morse

Information and Knowledge Research Group, Inc., Nashville, TN, USA
e-mail: morse@ikrg.com

International project work has become part of everyday business. That means technical experts and managers constantly extend their experiences with and knowledge of **cultural differences**. However, piling up individual **experiences without reflecting on them** is not enough for successful intercultural cooperation (Amir 1994). This chapter offers helpful insights and tools for reflecting on intercultural experiences and utilizing cultural differences in international teams. The following case study illustrates typical difficulties in international teamwork. It is the basis upon which we later discuss why such difficulties arise (causes) and how best to address them (solutions).

Example

The project

A German company specializing in car electronics wants to develop a novel navigation system. The project team in charge consists of four German engineers who have been working for the company for many years and two U.S. American experts for display technology hired especially for the project. One of the Germans is the team leader and head of the project.

The planning phase

During the kick-off meeting, **tensions** arise between the Germans and the Americans, because they **differ substantially in what they think** the final product should be like. The Americans have many ideas that could make the product more attractive for potential users, but the Germans reject these as not being feasible or serious enough.

In the sessions that follow, the Germans engage in an intensive discussion of the **potential problems of implementing** the proposals they consider to be realistic. Consequently, the team is **not able to come to a decision on time**. In spite of this, the project leader does not take charge, but participates in the discussion like his German peers. The two Americans withdraw from the discussion for most of the time, and only occasionally complain that “we’re beating a dead horse” and urge for a decision.

After many more planning sessions, the whole team reaches an agreement in favor of a technically sophisticated and elegant solution. The Americans **are somewhat concerned**, however, about whether such an ambitious device can be developed within the time and budget allotted. They also wonder whether customers will be willing to pay a higher price for features they do not necessarily need. Nevertheless, they are very optimistic, motivated, and visibly happy to finally be starting the construction of the product.

The construction phase

While everyone works individually on their subtasks, the Americans contact their German colleagues on a daily basis. They ask for support, information, or feedback. The Germans, however, do not understand this behavior and begin to wonder why these two became part of the team in the first place. They feel more and more annoyed by them. Finally, they decide to only make themselves available for their American colleagues at limited, predetermined times. The Americans are shocked by this **breakdown in communication** and wonder whether the Germans are at all capable of being team players.

When the first milestone is presented, the situation nearly teeters out of control. The Americans talk about how they **tried** this and that, started over again, and finally came up with brilliant solutions. Their presentation is professional, very entertaining, and convincing. They prove to be the experts the team needs. Their **results** are creative and functional, but **not fully compatible** with the planned product.

The Germans are very clearly outspoken about how they are not satisfied with this solution:

- It is a “**patchwork solution**”, “haphazard”, and “sloppy work”.
- The Americans obviously did not pay attention during planning sessions.
- They do not plan ahead enough, are ill-prepared, “clueless”, unsystematic, and only interested in quick and **superficial solutions**.

The Americans react to this criticism by blaming the Germans:

- They wasted too much time discussing redundant details before getting to action.
- The Germans kill any creativity and motivation with criticism and worry.
- They are unable to make a decision, uncooperative, rude, **inflexible**, and refuse to budge from previously agreed-upon solutions even in the face of an obvious need to do so.

Ultimately, the project leader is able to calm the situation. Everybody agrees to his proposal to meet on a more regular basis to guarantee that the team pulls together.

The final phase

Meeting more frequently does not turn out to be a satisfactory solution, however, as doing so distinctly reduces the time available for working directly on the actual product. Furthermore, the Americans and Germans continue to reproach each other about the slightest details during these meetings. In spite of this, the team is ultimately forged together. Although they **exceed the time and budgetary constraints**, they manage to develop a product that pleases corporate management. The Germans and Americans do agree, however, that the project was **extremely stressful** and on the whole the experience of working with the other group is **regarded** in rather **negative** terms.

This case study is taken from a study of cultural differences in problem-solving processes in German-American project teams (Schroll-Machl 1996). Although the project is a success in the end, its proceedings are problematic. Such a finding is typical of current research into intercultural teamwork. Despite largely inconsistent findings across various studies, one insight is generally confirmed across all of them: **Intercultural teams** have a **higher potential** for exhibiting greater knowledge and creativity, but they also need more **time and effort** than monocultural teams to transfer that potential into actual productivity (van Knippenberg and Schippers 2007).

In addition, the various members of intercultural teams are often located in different places. This makes face-to-face meetings more difficult to arrange, and thus team members often must cooperate predominately with various electronic technologies instead (e.g. phone, video conferencing, email, etc.). Thus, intercultural teamwork is often also virtual teamwork, which adds another layer of complexity.

17.2 Background and Relevance from a Psychological Perspective: Terms and Processes in Intercultural Cooperation

There are numerous reasons for hiring team members of different nationalities. In the case study, specialists from abroad provided expert knowledge that was not available in the company's home country. In other situations, international business relations require a company to have a project team of several nationalities. Sometimes a company deliberately chooses team members from different cultures, because they expect different cultural perspectives and approaches to enhance creativity and innovation. But **"synergy is not for free"** (Stumpf 2010, p. 310), as you first have to minimize potential **culturally determined friction** before you can capitalize on cultural diversity (Early and Mosakowski 2000).

17.2.1 Culturally Diverse Teams

Managing people in projects is always a challenge. Individual team members have individual personalities, individual criteria for what counts as a good solution, and individual styles of working, problem solving, communicating, and so forth.

Individuals develop their specific patterns of thinking, judging, and behaving **during socialization** in institutions like families, schools, universities, and companies. If people have similar experiences of socialization, their patterns of behavior will be more alike than if they were socialized in completely different environments. People growing up in one culture normally share more than just a common language; they share a **common set of basic values, norms, and patterns of behavior**. These unspoken **"rules"** of social practice give individuals a sense of orientation for planning, performing, and evaluating their actions.

- ▶ "Culture creates a structured environment within which a population can function. It encompasses objects we created and use in our daily lives, as well as our institutions, ideas, and values. Culture is always manifested in a **system of orientation** typical to a country, society, organization or group. [...] This system of orientation provides all members with a sense of belonging and inclusion within a society or group and creates an environment in which individuals can develop a unique sense of self and function effectively." (Thomas 2010, p. 19)

This understanding of culture includes some important elements:

- Culture is a **universal phenomenon**: All humans live in specific cultures.
- Culture is a **dynamic phenomenon**: Members of a culture constantly contribute to its development.
- Culture is an **interactive phenomenon**: People create culture by social practice, by creating and using objects, institutions, rituals, symbols, values, and so forth, but culture also influences its members' perceptions, cognition, emotions, and actions.
- Culture is a **regulative phenomenon**: It facilitates action, but also determines the limits for these actions. Society punishes actions that cross these thresholds.

Culture does not necessarily mean national or ethnic culture. Any community of humans creates a culture, like organizational, generational, regional, and gender cultures. In the workplace, the different cultural norms created by different professional groups often come to the fore. For example, technicians and sales people are known to have significant problems with cooperating (Lovelace et al. 2001).

If members of different cultural groups are working together in a team, **different styles of communicating and working** as well as processes of **social categorization** can impede the evolution of a common group identity (van Der Zee et al. 2004). This in turn can make it difficult for the team to reach the higher potential of knowledge and creativity it hoped for (van Knippenberg et al. 2004).

17.2.2 How Culturally-Determined Conflicts Arise Within a Team

In the case study, the team members unwittingly acted according to their culture-specific systems of orientation. In doing so, they caused culturally determined conflicts right from the beginning and were not able to resolve these conflicts in a satisfactory way. Detailed research into how culturally determined conflicts arise has yielded quite consistent results (Early and Mosakowski 2000), and Henri Tajfel's Social Identity Theory (Tajfel 1982) provides a suitable, empirically grounded framework for explaining how such conflicts develop:

The Development of Culturally Determined Conflicts (According to Tajfel 1982)

1. In order to deal with highly complex social environments, humans tend to simplify them and establish easily discernible social categories (e.g. the Germans and Americans in the case study). They assign themselves and others to these categories and identify with the groups they are part of – they form a **social identity** and distinguish between in-groups and out-groups or, as Tajfel puts it, “We are what we are, because they are not what we are.” (Tajfel 1979, p. 183).

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2. Based on the available information and experiences, the German and American team members associate certain attributes with the members of the out-group. This process is called **stereotyping**. From a psychological perspective, stereotypes are not automatically negative, but indeed very helpful cognitive simplification tools, “images in the head” that orient us on how to deal with people that we categorized as representatives of certain groups. Prejudices, on the other hand, are not just cognitive simplifiers, but also tend to be emotionally loaded, most often negatively, resistant to change, and can often result in discrimination.
3. In the case study, the Germans are surprised about the Americans’ “absurd”, presumably unrealistic product ideas. The Americans, on the other hand, are not accustomed to people (i.e. their German peers) criticizing their ideas so bluntly and rejecting their proposals so directly. Members of both groups are irritated by the others’ behavior. People often make attributions in the face of such irritations, very often by associating the irritating behavior with either the individual’s character or their membership in the out-group. Moreover, if the **irritating behavior** fits existing stereotypes and is shown by more than one member of the out-group, the more likely the behavior will be **considered “typical”** (e.g. “Typically superficial Americans!”, “Typically rude Germans!”).
4. Along with the effects of social categorization, social identity, stereotyping, and attribution, effects of **intergroup bias** can occur. When these are present, they can further fuel culturally determined conflicts within a team. For example, in social comparisons, the in-group is often subjectively rated significantly better than the out-group. The perspectives and practices taken by in-group members are seen as normal, universal, and generally sensible. Divergent ideas are rejected as abnormal and futile. Furthermore, in-group members see themselves more as individuals, whereas out-group members are viewed more as a homogeneous crowd comprised of typical representatives. Finally, it is normally easier to trust people from one’s own group than people from another group.

If teams ignore social categories and are not aware of their own stereotypes, they will not be well positioned to mitigate the adverse effects of stereotyping, misattribution, and intergroup bias. Thus “**faultlines**” (Lau and Murnighan 1998) between cultural subgroups can easily develop, seriously endangering further cooperation. Teams consisting of only two cultural subgroups that differ in more than one dimension (e.g. nationality and expertise in the case study) are especially prone to suffering from such faultlines (Earley and Mosakowski 2000). The presence of multiple cultures, high degrees of heterogeneity, or mixed differences (e.g. both American and German groups have experts on display technology) within a team reduce that risk (van Der Zee et al. 2004).

Table 17.1 Culturally different problem solving processes in German-American project teams

German way of solving problems in teams	U.S.-American way of solving problem in teams
Understanding the problem: Collecting information, discussing proposals, going through the steps of implementation in theory, focus on technical feasibility	Specifying the outcome: Brainstorming, describing the final product exactly, focus on the needs of the user/consumer/customer
Reaching a consensus: Agreeing on the final product and joint strategy, team members are responsible for finding adequate sub-tasks and discussing the distribution of tasks	Getting into action: Quickly defining milestones, the team leader assigns adequate sub-tasks, the team members complete them individually and with a focus on their assigned goal
Intensive planning: When complications occur, individual team members do not modify planned proceedings on their own, but the whole team starts planning again	Trial-and-error: Individual testing of potential solutions, when complications occur, individual team members readily modify planned proceedings on their own
Organized sharing of information: While completing planned sub-tasks, spontaneous interaction between team members outside of organized meetings is regarded as distracting	Spontaneous sharing of information: Fast changes require the frequent and spontaneous sharing of information and a constant need for feedback

17.2.3 Information Processing and Knowledge Management

“Planning Is Everything!” Versus “You Never Go, You Never Know!”

What exactly made cooperation so difficult in the case study? Schroll-Machl (1996) identified **culturally different problem-solving processes** in German-American project teams as highlighted in Table 17.1.

These results correspond to work-related values and norms in German culture and U.S.-American culture that have been identified in **cross-cultural research**:

Work-Related Values and Norms in German Culture and U.S.-American Culture

Geert Hofstede, a prominent cross-cultural scholar, surveyed more than 116,000 IBM employees working in 53 different nations. He identified five **cultural dimensions** and evaluated each investigated nation on these five scales (Hofstede 2001, also see <http://www.geert-hofstede.com/>).

According to Hofstede’s cultural dimensions, German and U.S.-American working cultures can be described as follows:

1. Both cultures have relatively flat hierarchies (i.e. low scores on the “Power Distance” dimension).
2. In Germany, employees value the accomplishment of individual goals not as highly as employees in the USA; rather, they value goals on the level of organizational units (e.g. departmental goals, divisional goals) or the whole

- company's goals (i.e. very high scores and somewhat lower scores for the USA and Germany, respectively, on the "Individualism/Collectivism" dimension).
3. In Germany, there is a stronger perceived need for safety and regulation than in the USA (i.e., low scores for the USA and significantly higher scores for Germany on the "Uncertainty Avoidance" dimension).
 4. In both cultures, competition, achievement, and success are more important values than caring for others or the quality of life (i.e. moderate to high scores on the "Masculinity/Femininity" dimension).
 5. Both cultures tend to take a short-term historical perspective. For example, business reports are issued and evaluated quarterly; long-standing traditions and extensive historical review do not play a major role in everyday business (i.e. low scores for the "Long-Term Orientation" dimension).

Generally speaking, then, Americans prefer a more individualistic working style and fewer regulations than their German counterparts. These findings fit well with the issues illustrated by the case study, in particular the Germans' stronger need for finding a consensus, planning intensively together, and adhering to the plan once agreed upon.

In addition to surveying people from different nations about their work-related values and developing cultural dimensions such as the Hofstede dimensions, researchers also interview people about their experiences with representatives of other cultures to identify so-called **cultural standards**. Such cultural standards can be developed and verified with the critical incident technique. **Critical incidents** are surprising, unexpected, and perhaps even irritating sequences of events experienced by a person while living or working in some other culture. Researchers document and analyze these incidents, and those incidents that occur repeatedly – and, importantly, across different people and different contexts – are refined and developed into putative cultural standards.

- ▶ "**Cultural standards** are forms of perception, thought patterns, judgment, and interaction that are shared by a majority of the members of a specific culture who regard their behavior as normal, typical, and binding." (Thomas 2010, p. 22).

There has been extensive research into German cultural standards. The following German cultural standards have been shown to be relevant when Germans cooperate with the members of a number of different cultures (Thomas 2010, p. 23):

German Cultural Standards (Thomas 2010, p. 23)

Task orientation: Concentrating on tasks, objects, and goals is often more important than concentrating on people, relationships, or personal needs. In German working life, a prevalent attitude is "I like my colleagues, because

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they do a good job”, whereas it is the other way around in many other cultures: “I am doing a good job, because I like my colleagues.”

Rules and regulations: Structures and rules are essential and working processes are often regulated in detail. Germans expect and appreciate regulation to a great extent. They also expect others to adhere to rules, and they intervene if someone breaks the rules.

Directness and truth: Germans prefer a rather low-context communication style. “There is right and wrong and very little in between.” (Thomas 2010, p. 23) To say something directly is regarded as honest, effective, and efficient – even if it is negative or might hurt someone’s feelings. You can rely on agreements.

Interpersonal distance: In German culture, it is important to “mind your own business.” Interfering without being asked is regarded as indiscreet; addressing private matters during working hours is seen as inappropriate. Germans tend to distinguish precisely between different groups of people with whom they interact, for example, with colleagues, acquaintances, sports teammates, and so forth. It takes a long time for the typical German to call someone else a friend.

Internalized control: Taking responsibility and working autonomously are highly respected and appreciated motives in German working culture. Germans are usually internally motivated to implement the ideas and goals they are convinced about, even when sticking to principles is uncomfortable or when no superior is monitoring them.

Time management: Time is regarded as a valuable resource. It may not be wasted, but has to be structured and portioned. Intensive planning, schedules, and agendas are important instruments in German working life.

Working in a team with members from different cultures without acknowledging the relevant culture-specific characteristics can easily cause problems and misunderstandings, especially in sensitive areas like appraisals, personal relations, individual responsibility, delegating assignments, punctuality, or deadlines. Being aware of one’s own cultural standards is even more important than knowledge about other cultures’ characteristics.

17.2.4 Cultural Differences in Key Work-related Dimensions of Behavior

If information or literature on the team members’ specific cultural characteristics is not available, international project teams should invest some time and effort into identifying them on their own by inquiry or observation. The following questions regarding key work-related dimensions of behavior might be helpful for investigating cultural differences in a team (Falck et al. 2003):

Checklist. Helpful Questions Regarding Central Work-related Dimensions of Behavior

Group identity vs. individuality: Do team members easily accept individuality? Are they irritated if one team member wears flamboyant clothes or prefers to read a book, instead of joining the others for lunch? Is it OK to question the predominant views within the team?

Formal rules vs. flexible, context-related strategies: Do team members sanction violations of existing rules? Is it OK to proceed flexibly with agreements or official regulations when desirable or necessary? Which excuse for being late for work do team members view as acceptable?

Hierarchy and authority vs. participation and autonomy: How easily do team members accept decisions? Does the team leader have to reason extensively about decisions and convince team members by strong argument? Do team members expect concrete, detailed assignments and constant monitoring and feedback? Do team members react sensitively when colleagues of the same hierarchy level issue orders?

Competition and assertiveness vs. attentiveness and care: Do team members praise their own achievements or do they play them down? Are team members uncomfortable with controversy? Do team members go out of their way to look after others who have been criticized? Is modesty regarded as better than activity?

Pragmatism vs. conceptuality: Do team members demand a detailed **plan** before getting to work? Do team members first try things out and then easily adjust planned proceedings afterwards? Do team members seem annoyed if a plan is changed at short notice?

Serial vs. parallel time management: Do team members complete tasks one after the other or do they prefer working on several tasks at once? Do team members keep appointments scrupulously? Are they upset if others do not? Do they easily accept delays or changes in the timeline? Do team members demand an agenda in meetings, and do they insist on keeping it?

Implicit vs. explicit communication: Do team members criticize others directly or diplomatically? Does silence in a meeting mean acceptance or rejection? Do team members “put it bluntly”, or do they “beat around the bush”?

Conflict vs. harmony: Do team members try to avoid open conflict at any price, or do they prefer to talk things out? Do team members react sensitively, if someone addresses problems openly? Do they try to “save face”?

Task orientation vs. relationship orientation: Do team members appreciate small talk and getting to know each other personally? Do they perceive social team events as an inconvenient increase of their workload or as an important and rewarding experience? Do team members extend breaks to talk about private matters, or do they want to get back to work quickly?

17.3 Footholds for Improvement: Models and Methods for Intercultural Cooperation

17.3.1 Managing Cultural Differences Within the Team

Looking at the different ways of solving problems found in German / U.S.-American teams (Table 17.1), one might wonder how the team in the case study managed to bring the project to a successful completion (at least in terms of a final outcome). Because the team developed an **awareness for cultural differences** after the disastrous milestone presentation and had a stronger motivation for achieving productive cooperation than for confrontation, the team members were able to wrangle a successful outcome. By meeting on a more frequent and consistent basis, they were willing to make concessions to their cultural differences and thus were able to develop mutually agreeable solutions. Nevertheless, these concessions demanded a lot of effort and energy from all of the team members.

Processes of learning and adjustment took place on both sides, which made working together more effective and finally lead to the desired results. Cross-cultural researchers have interviewed expert team leaders in international projects to better understand the **strategies** they employ in order to **manage cultural differences within a team**. Based on these interviews, the researchers identified four developmental stages of cooperation in international teams. They then found confirmation for these stages in a study in which culturally mixed student teams took part in a complex business game (Stumpf and Zeuschel 2001).

The Developmental Stages of Cooperation in International Teams (According to Stumpf and Zeuschel 2001)

1. Dominance/Assimilation

A dominant cultural subgroup imposes its culture-specific style of working and communication on the other subgroups. Dominance can originate from being the largest group, having the same nationality as the employing company, being local at the site of the project, having expert knowledge, or simply being very assertive. In the case study, some of these factors were evident, with dominance/assimilation prevalent in the planning phase: The Germans enforced their familiar way of working together in a team; the Americans complied with it, albeit unwillingly. This can be problematic, however, because **dominance/assimilation can be destructive** and provoke **reactant** thought, feeling, or behavior if the dominated cultural group is not truly convinced of the implemented practice, but rather forced to accept it. On the other hand, **dominance/assimilation can also be productive** and the most efficient alternative in a given situation, provided that the whole team has **consciously** negotiated it as a moderately practiced, reciprocal, and temporary strategy. In Fig. 17.1, the dominant culture A is depicted as larger than the assimilated culture B; cooperation is unidimensional, corresponding to the dominant culture.

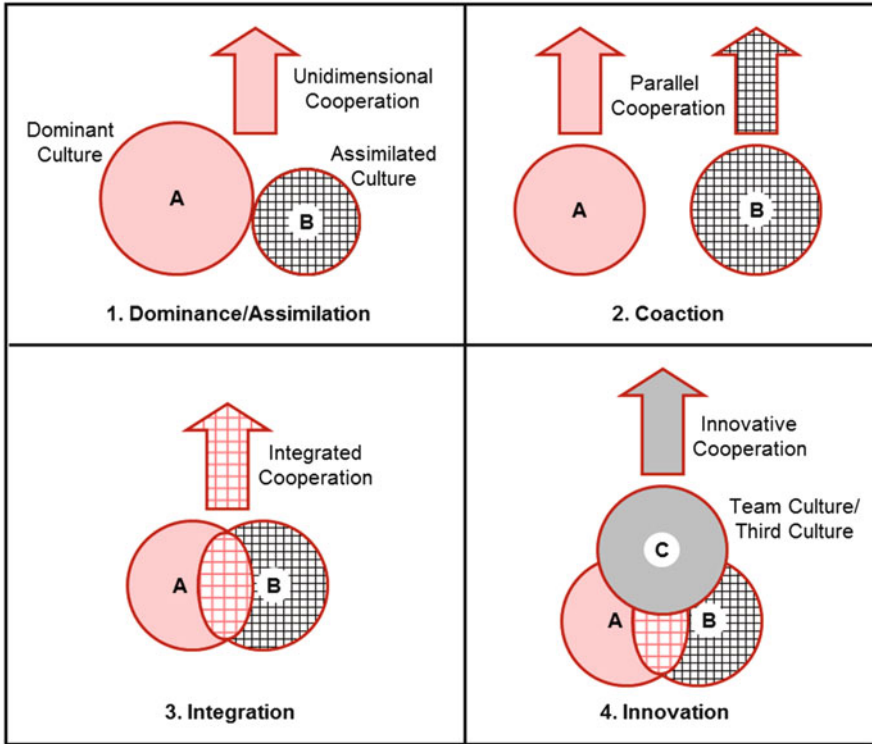


Fig. 17.1 Stages of cooperation in international teams

2. Coaction

If cultural subgroups become tired of assimilating to another culture's dominant style of working, they can stand up to the dominant group and try to establish their own culture-specific way of working together (i.e. implement another form of dominance/assimilation). However, if team members do not want to jeopardize the project with open intercultural conflicts, they tend to withdraw to their cultural in-groups and try to work according to their own culture-specific style within their groups. Consequently, interaction between cultural subgroups is minimized; the team as a whole does not really work together, as several subteams work separately. This form of parallel cooperation is called coaction. Figure 17.1 depicts two different cultures practicing two different working styles. The German-American project team did exactly this during the construction phase of the project: Germans and Americans worked on their subtasks in parallel in their own cultural groups according to their familiar culture-specific way of solving problems. Again, this can be **productive**, if the team **deliberately** chose this strategy as a way of achieving mutual support for a fixed period of time. In the case study, however, the cultural withdrawal serves more as an example of **destructive coaction**, in that cultural

subgroups (mainly the Germans) actively **avoided contact** and did not exchange enough information. Thus, they reinforced negative stereotypes and risked competing against each other.

3. Integration

At some point in an international project, coaction becomes infeasible, because the team has to produce a shared result. Unless the team decides that failing is easier to bear than continuing cooperation, they will have to integrate different culture-specific working styles by combining elements of the diverse practices involved. After the controversy that arose during the milestone presentation, the team in the case study chose such an integrative strategy by meeting more frequently and regularly, thus responding to both the Americans' need for more frequent communication and the Germans' need for planning. That the whole team negotiated and agreed on this strategy proved to be a necessary precursor for the project's final success. If they had been forced to integrate due to an outside force (e.g. the company's management), it would have ended in **destructive integration**. In this case, however, the new strategy was more like a **bad compromise** and not really satisfactory for the whole team, because the team did not understand and appreciate every member's culture-specific characteristics. For **productive integration**, the team members need to learn about cultural differences within the team, respect and value these, find ways of satisfying every culture involved, and work to combine cultural characteristics in a way that leverages the strengths and moderates the weaknesses of each in regards to the project goals. These **processes of learning** facilitate **group identification**, so that team members can more easily identify with the whole team, not just with their own cultural subgroups. In Fig. 17.1 the grid between cultures A and B combines elements of both cultures and illustrates group identification in the overlap between the two cultures as well as integrated cooperation.

4. Innovation

Innovation is the last and highest stage of cooperation in international teams. When teams succeed at integrated cooperation, their members are fully aware of their own cultural frames of reference in relation to the other members. They can easily adapt to different culture-specific social practices without feeling threatened in their own cultural identity. The team has developed a strong sense of group identification and a high level of **trust**. From this point on, the team can move on to innovative forms of intercultural cooperation, which means generating novel, optimized, goal oriented strategies that go beyond the culture-specific orientation systems of its members and result in a singular, innovative team culture. Innovation is a "**third culture**" or "international microculture" (Zeutschel 2010, p. 276) that the team creates as it becomes a learning organization. Accordingly, Fig. 17.1 highlights a completely new culture C originating from cultures A and B. This stage of intercultural cooperation effectively capitalizes on cultural diversity and

yields notable **improvements in productivity**. Note, however, that this might actually lead to **destructive consequences** if the team separates too much from the parent organization. Innovation represents that fabled **synergy** that every company is hoping for when they compose an international project team. However, innovation, synergy, and the resulting enhanced productivity require sustained, focused, and reflective time and effort on the part of the team members and the team as a whole. The German-American project team, although successful in the basic project goals, did not show any signs of innovation.

Figure 17.1 depicts the four stages of cooperation in international teams.

17.3.2 Productive Management of Heterogeneity in International Teams

Whether an international project team is able to exploit their higher potential of knowledge and creativity, instead of getting lost in culturally determined struggles, depends critically on the successful **management of heterogeneity** (Stumpf 2010).

Managing heterogeneity in international project teams can and should occur on three levels:

1. individual team members
2. the team as a working unit
3. the organization's management

Individual Team Members

In order to develop synergistic forms of cooperation, an international team needs interculturally competent members. This applies in particular to the project leader.

- ▶ **Intercultural competence** is the "ability to communicate effectively and appropriately in intercultural situations based on one's intercultural knowledge, skills, and attitudes" (Deardorff 2006, p. 248).

Intercultural competence should be regarded a key qualification in the selection of team members for international projects. Intercultural competence results from a learning and development process that empowers individuals to deal productively and equitably with new and complex situations arising from cultural differences. Interculturally competent individuals are able to recognize, respect, and capitalize on cultural influences in perception, cognition, decision-making, emotion, and action in themselves and other people (Thomas 2006).

When forming an international project team, the people in charge of selecting personnel should not only pay attention to "hard skills", such as functional expertise or technical skill, but also to intercultural competence. Bergemann and Sourisseaux (2003) describe methods for **intercultural human resource selection**:

Methods of Intercultural Human Resource Selection (According to Bergemann and Sourisseaux 2003)

- **Psychological personality testing** for assessing relevant personality traits (such as flexibility, self-efficacy, openness, perspective taking, tolerance for ambiguity, sociability)
- **Biographical questions** in interviews and questionnaires for assessing previous intercultural experiences
- **Situated questions** in interviews and questionnaires for assessing the understanding of and intended reaction to intercultural situations (“How would you react in the following situation. . .?”)
- **360° feedback** for assessing intercultural competent interaction with employees, colleagues, superiors, customers, and so forth
- Intercultural **assessment centers** for assessing intercultural competent behavior in specific and authentic intercultural situations

Furthermore, members of an international project team should participate in **intercultural training**. We recommend a combination of culture-general and culture-specific training as well as a mix of cognitive and experiential training methods. **Culture-general** training enhances general cultural awareness of how one’s own cultural orientation system influences interactions in intercultural cooperation. **Culture-specific training** addresses specific information about the other cultures involved in the project and works with concrete situations of interaction between members of these cultures. There is an abundance of literature on the concepts, methods, implementation, and evaluation of different intercultural training formats (e.g. Landis et al. 2004).

Chapters 7 (Moser, Galais, & Byler), 9 (Lyubovnikova & West) and 10 (Kauffeld, Lehmann-Willenbrock, & Grote) in this volume provide further information on human resource selection and development in the context of project management.

The Team as a Working Unit

As already mentioned, **team development** – including the negotiation of outcomes, working styles, and communication within the team – **requires more time and effort with international teams** than with monocultural teams. The process of team development in international teams can be divided into three stages: **mapping, bridging, and integrating** (Maznevski and Di Stefano 2000).

Three Stages of Team Development in International Teams (According to Maznevski and Di Stefano 2000)

Mapping: At the start of the project, team members have to identify cultural differences and similarities regarding work-related dimensions of behavior. They should discuss what impact culture-specific standards can have on group processes and effectiveness.

Bridging: Once the team is familiar with existing cultural characteristics, they have to develop strategies for effective and efficient communication that takes into account relevant cultural differences.

Integrating: Effective and efficient communication is a key precondition for developing standards for working together. These standards of collaboration must meet the needs of all team members and cultural subgroups. They should minimize culturally determined friction and seek to make optimal use of culture-specific strengths in regards to the project goals. In this third stage, the team could, for example, deliberately agree on an initial but temporary reciprocal dominance/assimilation strategy as a first step towards strategies of coaction, integration, and innovation.

Zeuschel (2010) suggests **team development workshops** with an external facilitator at the beginning and at every milestone of the project. In these workshops, the team gets the opportunity to discuss, analyze, and find solutions for problems of communication and collaboration. Ideally, two project leaders from different cultural subgroups who already know each other take over leadership together or in alternation to enhance group identity and integration. Recommendations for successful communication in this context can be found in Chap. 4 in this volume.

As the project unfolds, culturally determined conflicts probably will occur, no matter how good preparations have been. But an interculturally aware and competent team can detect these problems more easily, solve them more efficiently, and, importantly, learn to make use of such conflicts for further **intercultural learning on the job** (Stumpf 2010). However, intercultural learning on the job during the course of an international project requires time and resources for reflection, feedback, and supervision. Regular **project coaching** and team development workshops with an external, professional intercultural coach can help provide these critical opportunities for reflection and feedback.

Zeuschel (2010) has developed a set of questions and exercises for reflecting on and integrating different culture-specific communication and cooperation patterns during team development with international work groups. As a specific example, one activity has monocultural subgroups identify and present the cultural differences they have discerned thus far in their experience with the project. Then, the other cultural groups discuss, correct, and complete the findings presented by each subgroup. Finally, culturally mixed, small groups work out strategies for better intercultural cooperation and share these with the entire team.

The Organization's Management

The organization's management can contribute to successful project management in international teams by establishing a positive image of international cooperation in general and the partner nations in particular. **Project mentors** in top management can show an interest in and their appreciation for international project teams. Furthermore, once an intercultural team has integrated and works together smoothly, the prospect of keeping that team together in future projects is itself motivating (Zeutschel 2010).

The intercultural experiences that team members have while working in an international project team are valuable **resources** for future international projects and should be harvested for **organizational intercultural learning**. This, of course, requires an intentional organizational effort, as someone has to capture, analyze, and categorize these **lessons learned** and develop effective systems of distribution of these lessons (Stumpf 2010).

Checklist. Checklist for Project Management in International Teams

- Select intercultural competent team members, especially competent project leader(s)
- Send team members to intercultural training
- Sensitize the organization's management about the characteristics and special needs of intercultural cooperation
- Select project leaders from different cultures
- Allow extra time and budget for negotiating outcomes, team communication, and styles of working
- Allow extra time and budget for getting to know each other personally (including spouses and families)
- Organize regular workshops for intercultural team development (mapping, bridging, integrating)
- Make sure that international teams progress successfully through the developmental stages of cooperation
- Organize regular project coaching for reflection, feedback, and supervision
- Consult professional external intercultural trainers/facilitators/coaches
- Systematically collect the lessons learned for future utilization (organizational learning)

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Guido Hertel and Borris Orlikowski

Abstract

Virtual project teams can bring together the best available experts for a task, irrespective of regional or temporal boundaries. At the same time, the management of virtual project teams poses unique challenges due to restricted opportunities for communication and limited direct face-to-face contact. Using research from work and organizational psychology, this chapter explains the typical problems of virtual project teams and explores concrete strategies for mastering these challenges.

18.1 The Problem

The **essential characteristic of virtual projects** is their extensive use of electronically mediated communication and collaboration. On the one hand, this provides a multitude of **strategic advantages**, such as easier and faster integration of subject matter experts, more efficiency and speed due to working “around the clock” across different time zones, a better documentation of the workflow with digitized work processes, reduced travel costs, and so on. On the other hand, **specific challenges** arise not only with respect to the economy, usability, and security of the applied software (groupware) system, but also in terms of **interpersonal processes** (“human factors”; cf. Hertel et al. 2005). Usually, organizations assume that the management of virtual project teams does not differ a great deal from the management of traditional projects. As a consequence, many project leaders “slip” into

G. Hertel (✉)

Organisational & Business Psychology, University of Muenster, Muenster, Germany
e-mail: ghertel@uni-muenster.de

B. Orlikowski

emendo - besser werden!, Hamburg, Germany
e-mail: orlikowski@emendo.org

virtual projects without undergoing much preparation or training. However, **managing virtual teams** requires additional knowledge and competencies above and beyond traditional management skills (cf. Krumm and Hertel 2012). For instance, managers need to be aware of the mechanisms, context, and conditions of electronically mediated communication, the specific **dynamics of distributed collaboration**, as well as potential difficulties caused by reduced face-to-face contact. Moreover, specific skills are needed to detect and anticipate difficulties and conflicts early in the (virtual) process and to start appropriate interventions.

The following example illustrates typical problems encountered by virtual project teams. To keep the level of complexity to a minimum, we have chosen a case in which all involved persons hail from the same cultural background.

Example

The Project:

A medium-sized bank in Germany wishes to **examine its organizational structure** and the amount of its **administration costs** in order to identify possible savings. To this end, the company commissions a **management consultancy** firm that puts together a team of four consultants. The bank, in turn, appoints a project manager from its own senior management who is not directly affected by the outcome of the project and who also appoints two employees from Controlling who are responsible for providing the consultants with the necessary information.

Planning and preparation:

While planning the project, the consultancy firm sets up a **virtual team of consultants**, in which each individual team member works from a different location. The most important **selection criterion** is the availability of the consultant, while technical criteria, experience in similar projects, or social aptitude are not explicitly considered. Conference calls are used by the consultants to share their information about the project goals and planning.

Project start:

The leader of the consulting team, along with the project leader of the bank, plans the first meeting to mark the official start of the project. Additionally, the two employees from Controlling and the unit manager whose unit is to be investigated also participate in the meeting. During this first meeting, **responsibilities** are agreed upon and **work packages** are allocated. As the timeframe for this meeting is tight, the participants are given **no time to become personally acquainted with each other**.

All the participants find the modus operandi presented by the leader of the consulting team acceptable and agree with the suggested project workflow as well as the form of communication and the **coordination of the project results**. On the whole, the first meeting enjoys a positive atmosphere, and the participants are convinced about the importance of the project. All of the participants of the bank are open and helpful during and immediately after the meeting. Apart from other topics, it is decided with reasons of economy in mind that there is no need for another meeting until the presentation of the results.

Project development and project management

Communication between the bank and the consultants relies on **emails** sent through **secure sever connections** meant for data exchange as well as on **fax** and **telephone** contacts. The interviews with the bank's employees are also conducted by telephone, meaning that the consultants do not have to come to the bank personally to share the data. As a consequence, some of the bank executives have a feeling that the consultants are not really 'taking care' of the project. Moreover, rumors emerge that the task of the project is merely to justify staff cuts that have already been decided. The consultants do not notice these developments, and are merely surprised that **the tone of the telephone conversations and the emails is starting to cool**. In addition, there is uncertainty about the type of data and the data sharing method that is allowed by the bank's security rules.

A first **conflict** ensues when the project leader of the bank learns that bank employees and consultants are sharing data without his approval. The consultants assumed that this would be a relief in view of the workload of the bank project leader. The bank project manager, however, experiences this as **betrayal of trust**. However, there is no discussion to clear up this issue. Instead, the project leader of the bank responds by enforcing **stronger control** over the communication between the bank and the consultants, which is substantially **more time-consuming**.

In the meantime, the initial willingness of the bank employees to cooperate has substantially decreased, and the required data and information is not being provided or provided only after **multiple requests**. While informal communication facilitated the process at the beginning of the project, each request must now be entered officially by email. To make matters worse, the requested summaries were not sent in the required format and **lacked important explanations**. This further delayed the entire process.

Due to this complicated way of sharing data, the consultants have to settle for a minimum of files with **clearly worse data quality** than they could theoretically have had. This, in turn, has negative effects on the two bank employees from Controlling, who, despite their heavy workload, had agreed to the additional tasks on the project. They now also begin to have doubts about the commitment of the consultants and the success of the project as a whole.

The project ends

On account of the delays in the delivery of the data, the original project plan could not be maintained. The **delayed final presentation** in the bank was marked by a **strong sense of mistrust** and **outspoken criticism**. The bank considered the project management to be insufficient and unprofessional, and **the overall value of the presented results was challenged**. The consultants were asked to rework the results to a considerable degree, which required an additional four weeks' effort, without any budget made available for this purpose by the bank.

This example (based on a real case, but alienated for reasons of anonymity) brings together a **series of typical problems** which are encountered as depicted or

in a similar manner in many virtual projects. Specifically, this example shows that reduced communication and the absence of personal contact in the context of virtual work constitute additional sources for misinterpretations. Moreover, conflicts escalate faster and endanger the very success of the project. These **specific pitfalls of virtual project work** include the following:

Checklist. Potential Difficulties in Virtual Projects

- Neglecting non-technical competences when staffing the virtual project team, for example, competencies in communicating with electronic media
- Unclear allocation of roles and competences, which leads to conflicts and misunderstandings especially in virtual teams
- Lacking infrastructure for communication within the project team
- Insufficient opportunities for establishing informal acquaintances in the team and building trust within the virtual project team
- Unclear conflict de-escalation strategies that could be used to alleviate misunderstandings or misinterpretations of electronic communication
- Insufficient documentation of the project's progress and lack of appropriate knowledge management of remotely working team members
- Delayed discussion of collaboration problems due to the spatial distance

18.2 Background and Relevance from a Psychological Perspective

Following the description of typical problems in virtual project work, the **most important challenges** will now be discussed from a psychological perspective. The aim is to achieve a better understanding of the reasons for why virtual projects can fail and/or what is required for the successful management of virtual projects. It should be noted that the **level of virtuality in a project** can vary considerably, both between individual projects and over time in a single project. Indicators of virtuality are, for example, the spatial distance between the employees or the relative amount of communication managed electronically. The following discussion concentrates on projects with a high degree of virtuality.

18.2.1 Communication Via Electronic Media

By definition, a high percentage of the communication in virtual project work is conducted via **electronic media**, such as email, telephone, video or web conference, or online chat systems. These media offer a multitude of **advantages**. For instance, electronic communication media can bridge large distances almost in real time. Simpler tasks such as arranging appointments or sharing information are often much more efficient via email as compared to face-to-face meetings. Moreover, electronic communication such as emails facilitate **time management**, as they are

not ‘forced’ on the receiver, but rather ‘pulled’ by the receiver whenever he or she has time to work on them. Thus, electronic media potentially enable higher flexibility and control in the communication process. The **extent of unplanned distractions** can be clearly reduced when the email client program is not constantly active in the background, or when messages are not forwarded immediately to a mobile device. Furthermore, electronic media **facilitate the collective generation of ideas** (“electronic brainstorming”), because project team members do not interrupt each other in the creative process. Moreover, discussions and decisions, for example during a web conference, can be easily documented and shown to other people at a later point in time. And finally, electronic communication can **improve decision making**, as the socially or emotionally disruptive influences in the evaluation of the information are less evident (Griffith and Neale 2001).

To make the best possible use of the advantages of electronic communication, it is vital to **choose an appropriate medium for communication**. Models of ‘channel reduction’ suggest that, compared to face-to-face settings, electronic media can impoverish communication, because only a part of the information is transferred. For instance, the facial expressions of the other person are invisible during telephone conversations, and the reactions to an email might arrive with considerable delay. As the example above points out, impoverished communication can lead to fundamental misunderstandings.

- ▶ Electronically exchanged communication is not better or worse than face-to-face communication per se; rather, it depends on the fit to the communication’s goals and context.

Guidelines for the efficient application of electronic communication media are offered by theories that consider the reason and purpose of the communication. The best known of these theories is the **Media Richness Theory** (Daft and Lengel 1986; Maruping and Agrarwal 2004), according to which the choice of communication media should be based on the **insecurity and ambiguity of the current communication situation** (Table 18.1). The greater the uncertainty or insecurity in a situation, the **richer the media** should be. Media richness includes the quantity of information broadcast per time unit, the number of the communication channels used, and the directness of feedback. Examples of rich media are personal conversations or video conferences, whereas email or faxes can be considered less rich media.

Beyond this, the right timing of the communication is vital. Successful projects are characterized by far-sighted planning and a regular sequence of high-density interaction (meetings) and working phases with relatively low-density interaction (contacts mainly via email; cf. Maznevski and Chudoba 2000).

Moreover, the **symbolic effect of media use** should not be neglected. For instance, **positive feedback** for an employee has a much higher impact if the project manager delivers this **personally** in front of the whole team, **instead of merely via email**. And finally, **personal preferences for communication media** should also be considered. In situations of conflict for example, introvert and

Table 18.1 Implications of the Media Richness Theory

Situation-specific	Effects on communication media
The more complicated a topic	The richer the communication media should be
The higher the task-related interdependence within the project	The more often it should be communicated
The greater the cultural or professional heterogeneity in the project team	The richer the media should be
The more similar the individual perspectives and the clearer the goals within the project	The easier the medium can be
If rich media are not necessary	Then the most economical medium should be chosen
The remaining options are determined by personal preferences, such as extraversion or language skills	

socially anxious people prefer asynchronous media such as emails more than extrovert or self-assured people (e.g. Hertel et al. 2008), because asynchronous media provide more protection than synchronous media (e.g. telephone and face-to-face interaction). With asynchronous media, interaction partners can carefully prepare their statements and answers and might feel less disadvantaged than in direct encounters (Maruping and Agarwal 2004). In a similar manner, asynchronous media might be a first step in the de-escalation of high-intensity conflicts. The different parties might first work separately, calm down, and define their own interests in the conflict in detail. In the next step, these descriptions could be exchanged between the conflict parties, potentially already rectifying misperceptions and unnecessary concerns. The subsequent conflict management efforts might then continue with much less tension and a greater concentration on mutual interests and win-win solutions.

Regardless of individual dispositions, it is important for employees in virtual projects to have sufficient time to **familiarize themselves with the available communication media** or groupware tools. Prior research has shown that the initial drawbacks of computer-supported groups in comparison to face-to-face groups can diminish or even disappear over the course of a project. Indeed, recent reviews of computer-supported teamwork showed hardly any difference between computer-supported and face-to-face teams, either in terms of the quality of work results or in employee satisfaction (e.g. Fjermestad 2004).

The assumed **implicit learning processes** in dealing with electronic communication media can, of course, be accelerated and supported by **explicit training programs**. Apart from the selection of adequate media, **general rules of communication** for virtual projects include, for example, additional feedback loops to prevent misunderstandings or the loss of information, good and detailed documentation, clear agreements of the times for communication, as well as enabling non-task-related communication. The latter is important because, compared to face-to-face communication, electronic communication tends to imply a strong focus on the task alone, which might complicate the development of a sense of identification or cohesion in the project team. In the example above, for instance, considerable

delays in data procurement were partly due to lacking feedback loops between the bank employees and the consultants.

18.2.2 Management and Motivation at a Distance

Virtual project teams bring with them specific difficulties concerning the management and motivation of employees. Management strategies and group-dynamic influences (social support, group pressure etc.) that are essentially based on **direct contact** are less effective when managers and employees have limited opportunities for direct interaction. And although computer-supported workplaces offer a range of **technical possibilities to control** employees directly (e.g. recording login times, counting the amount of text material produced, unannounced monitoring of calls with customers), such “*Electronic Performance Monitoring*” is only of limited use for complex project work, as it breaks down work processes into small pieces. Indeed, empirical studies show that Electronic Performance Monitoring actually tends to decrease efficiency in more complex tasks, accompanied by lower job satisfaction (e.g. Aiello and Kolb 1995). This does not mean that Electronic Performance Monitoring has to have negative consequences. An **online documentation** of the status quo of subtasks or of the progress of the project as a whole that is visible for all project members can be conducive to good project coordination as well as the motivation of the employees. However, in the planning and implementation of such feedback systems, the **legal regulations** as well as the **works agreements negotiated with labor representatives** need to be observed, as they often prohibit the recording of performance indicators.

- ▶ Empirical studies of virtual teams have mostly shown **delegative leadership approaches** to be successful that support the independence of the employees and greater flexibility in the work processes.

Clear and **participatory goal setting** processes are among the strongest predictors of successful virtual teamwork (Hertel et al. 2004). Unambiguous and accepted goals transfer parts of managerial oversight to the project team members themselves, regardless of spatial presence. Such **shared leadership** or “**empowerment**” (Kirkman et al. 2004) of virtual project members might even trigger more motivation, because it signals the manager’s considerable trust in the loyalty and independence of his or her employees.

The executive functions of project leaders in virtual projects are undergoing a dramatic change in this respect. Instead of directive supervision or control, virtual projects demand more **support** and **coaching** for the employees in their independent activities. This requires a relatively high readiness to trust people on the part of the executives as well as a high degree of flexibility and willingness to experiment by managers. For instance, a relevant study shows that participative goal setting is also possible by means of **video conferences** (Wegge et al. 2007).

Table 18.2 Diagnostic questions of the VIST model in virtual teams (e.g., Hertel et al. 2004)

Motivational components	Diagnostic questions
Valence	How important are the main objectives of the project to the employee?
Instrumentality	To what extent does the employee believe his/her individual contribution to be crucial for the project's success?
Self-efficacy	To what extent does the employee believe him or herself to be capable of the tasks in the project?
Team trust	To what extent does the employee believe that the other project members are fulfilling their duties?

To analyze motivational processes in virtual teams and also to be able to develop suitable interventions, the **VIST model** (e.g. Hertel et al. 2004) contains four components that determine the motivation of employees (Table 18.2). The VIST model has proved itself to be successful in the first studies of virtual teams (Hertel et al. 2004). Depending on the answers to the questions shown here, the VIST model offers concrete intervention measures (see Sect. 17.3.2).

18.2.3 Data Processing and Knowledge Management

A third area of the specific characteristics of virtual project management concerns the **administration** and the **access** to the project's existing and thus potentially **available expertise**. While individual employees can build up so-called "transactive knowledge" relatively quickly in conventional projects by getting to know one another, i.e. getting to know the competence and expertise of the other team members, this is more difficult or takes longer in virtual teams (Griffith and Neale 2001).

- ▶ Abilities and knowledge which do not lie in the immediate task-related expertise of a project member (for example, special knowledge in art history), but which might nevertheless be relevant for the success of the project (for example, to win over a difficult customer), are less known among members in virtual projects compared to conventional projects with frequent face-to-face contact of their members.

This deficiency must be compensated for by project managers by means of **active support for informal communication and mutual acquaintance**.

At the same time, virtual teams also offer **advantages for knowledge management** due to the frequent use of electronic media, in particular for the **documentation** and storage of work processes and results. Media breaches are smaller in virtual teams, and many discussions and decisions can automatically be documented in the form of emails, discussion forums, web conferences, blogs, or similar means. Furthermore, integrating **electronic tools in knowledge management**

(for example, “Wikis”) into the existing Groupware can be relatively simple. Even here, however, management in the form of **mediation** and **maintenance** is necessary. Empirical studies by our research group have shown that, besides the user friendliness (“**Usability**”) of the knowledge management tools, the **social factors** are particularly relevant in encouraging their active use, such as the **exemplary role of the supervisor** in setting up contributions or showing appreciation for special commitment by members of the team.

Last, but not least, it needs to be ensured that the **technologies are suitable** for the virtual project. In the example given above, the consultants were only able to access the data from the bank in a cumbersome process, which in turn was a trigger for the first crisis in the project. Instead of solving the technical difficulties, it was insisted upon that formalities are complied with, which further escalated the conflicts.

18.2.4 Conflict Escalation and Conflict Management

The final group of special challenges discussed here involves the higher risk and more rapid escalation of **conflicts and misunderstandings** common in virtual teams. These effects are partly due to **limitations in communication** or rather in the communication media, as a consequence of which certain messages can easily be misunderstood. In the example given here, the lack of physical presence of the consultants during the collection of the data led to rapidly growing **mistrust**, which in turn impaired subsequent communication and thus became a “self-fulfilling prophecy”. A second source of conflict is the **lack of contextual information** about the other side in communication. Compared to traditional collaboration, it is often not immediately visible in virtual projects under what conditions the partner currently has to work, how high his current workload is, whether there is construction going on in the building etc. This lack of contextual information leads to disruptions being substantially more quickly blamed on the person (i.e. the partner being incapable or not being bothered) rather than the actual adverse circumstances (the data transfer is not working, the partner’s workload is currently very high because of other projects). With negative events, such a tendency to attribute responsibility increases the likelihood of **conflicts escalating** considerably.

Another consequence of the lack of context could lie in the fact that the **social norms of communication** (usual standards of politeness and behavioral etiquette) are less effective given the anonymity experienced within virtual projects. However, current research shows that the risk of escalating communication (so-called ‘**flaming**’) is rather uncommon in virtual projects, especially when people already know each other, have worked together for a longer period of time, and are reliant on each other (Montoya-Weiss et al. 2001). Instead, it may be more likely that **differences in behavioral norms** between members of different groups are overlooked in virtual project teams. Besides the differences caused by different **cultural backgrounds**, there are also differences in norms and expectations of the different **occupational groups** that are relevant. The initial example above

illustrates, among other things, different standards and expectations in handling the information between the consultants and bank employees.

Regardless of the specific causes, probably the biggest challenge for the management of virtual projects is the **timely recognition of conflicts**.

- ▶ Due to spatial distance and limited communication, the quick recognition of conflicts and misunderstandings is more difficult in virtual projects and requires higher sensitivity on the part of the project management.

Only when the project management remains in regular contact with all employees, fluctuations can be detected in time. The above example reveals further weaknesses in project leadership. Both project managers would have done well, for instance to supervise the climate in the cooperation between management consultancy and employees of the bank through informal communication. After the bank's managers were first approached by the consultancy project leader at the latest, escalation routines should have been put in place. It is sensible to **agree upon such escalation mechanisms right at the beginning** of any virtual cooperation.

After discussing the main problems in virtual projects against the background of the involved psychological processes in this section, the next section turns to deriving possible interventions which can compensate for these risks and gaps. Although the field of research is still in its infancy, a majority of the mentioned strategies, besides a systematic process analysis, are already based on empirical analyses (e.g. Hertel et al. 2005; Nemiro et al. 2008).

18.3 Approaches for Improving Virtual Project Work

18.3.1 Staffing

Over the past few years, virtual projects have often been introduced as 'en passant', without the responsible persons being aware of the additional requirements for employees and managers. Rather, the belief prevailed that it is sufficient to provide the latest **communication tools** and **groupware systems** available and the rest would follow by itself. In actual fact, the technical operation of most communication and cooperation technology is relatively quick to learn and today, a huge number of suitable groupware systems are available to support virtual projects. However, this alone is not sufficient. Rather, the **non-technical abilities of the employees** should also be considered when planning a virtual project and not the technical expertise or, as in the example above, matters of availability alone.

- ▶ The relevant core competences of the members of virtual projects can only be utilized optimally when they also possess additional skills for virtual cooperation.

According to our research (Hertel et al. 2006; Krumm and Hertel 2012), the **competences** usually required in conventional project work (problem-solving abilities, cooperativeness, conscientiousness etc.) have to be extended by the following key skills in virtual projects.

The Ability to Communicate Via Electronic Media An obvious requirement for the employees of virtual projects is their ability to handle the electronic communication media not only technically, but also **efficiently** in order to be able to reach the other employees. This applies particularly to project managers, who need to motivate their employees from a distance and keep them tied to the project. Relatively little is known so far about the **personal qualifications that lead to successful communication via electronic media**. In general, a genuine need for social contacts and communication, together with general communication skills, seems to be conducive in order to have a cohesive team working at distributed locations and to maintain interpersonal contacts. Except from such **stable individual dispositions**, essential aspects of communication through electronic media can be learned and/or trained.

A Willingness to Learn, Flexibility, and Creativity An additional requirement for employees in virtual projects is the **affinity towards new technologies** and the willingness to work independently with new media and tools. Furthermore, due to lower degrees of standardization and planning capability of virtual projects, a **higher degree of creativity** is desirable. Especially when the projects are to be executed across different organizational or even national boundaries, more unforeseen disruptions are to be expected than in traditional project work. This is particularly relevant for the tasks of the project manager. One project manager expresses this as follows:

I must be a diplomat to help teams overcome cultural differences, an ambassador to keep sponsors around the world updated on the team's progress, a psychologist to provide a variety of rewards to a diverse and often isolated group of team members, an executive, a coach, and a role model, all at the same time. (Malhotra et al. 2007, p. 68)

Initiative and Perseverance Further competences are derived from the often isolated position of employees in virtual projects. In this sense, it is necessary that employees can motivate themselves independently of their colleagues and superiors and manage their work (time management etc.), as well as not being too easily discouraged by setbacks. Although these competences are also important for traditional projects, they gain in importance with increasing virtuality.

A Willingness to Trust Virtual project work means not least working together with other people without being able to directly see to what extent this colleague is currently committing to the project. In order to still show a high commitment towards the project, it is sensible to possess a general willingness to trust, a **positive attitude towards co-operative work** and, on the part of project management, the readiness to use **delegative leadership principles**.

Tolerance in Dealing with Heterogeneity A final competence which is sought more frequently in virtual project work than in conventional projects is the tolerance for handling **different points of view and working methods**. Virtual cooperation is often realized across boundaries of regions, companies, or even countries, meaning that situations repeatedly arise in which different conventions and expectations collide with each other. Besides appropriate knowledge and experiences in dealing with other cultures, **general sensitivity and readiness** are desirable to be able to attune oneself to other perspectives and to recognize their advantages.

Apart from these conceptual considerations, fully validated personnel selection procedures developed specifically for virtual cooperation are still missing (cf. Krumm and Hertel 2012). An initial questionnaire instrument for virtual team competences has been introduced by Hertel et al. (2006).

18.3.2 Management and Motivation

Even if initial studies have shown that autonomy and delegative leadership strategies are successful in virtual projects (Hertel et al. 2005), **virtual teams** still should **not be left to their own devices**.

- ▶ Virtual project teams should not be 'left alone', but given specific support.

The **management tasks** are characterized less by directive tasks than they are in conventional projects; rather, they are marked by a greater emphasis on:

- **communication management**, for example, fostering mutual acquaintances among team members in the project.
- **coaching** of individual project members (motivation, integration support, etc.) including the project leader.
- **development of trust and identification** of the project staff in spite of spatial distance.
- **acknowledgement** of the individual contributions of employees on the project as well as of the superiors and colleagues in the 'real' location.

- **making visible** the virtual project **through frequent presentations of results** and by **lobbying** different stakeholders (for example, in the course of meetings with executives).

A promising concept in this context is “*Management by Interdependence*” (Hertel et al. 2004). This concept is based on the fundamental idea of compensating for the spatial and temporal separation between the project staff by increasing the experience of togetherness. For this purpose, there are three different starting points, which can be applied to the practices of the project management.

- Task interdependence
- Goal interdependence
- Outcome interdependence

Task Interdependence Through a high interconnection of different sub-tasks of a project, coordination and communication necessity arises for employees. Through this, not only are communication and mutual acquaintances fostered, so too is the perceived **contribution of the individuals to the team’s success**, with corresponding positive effects on their motivation. These positive effects are to be expected particularly at the beginning of virtual projects. Nevertheless, higher interdependence of the tasks also has potential disadvantages. For instance, the higher need for mutual agreement is associated with additional effort, and might increase the potential for conflict. Hence, in the further course of the project, it might be reasonable to start with relatively high task interdependence in the beginning of a virtual project, and to reduce this task interdependence subsequently.

Goal Interdependence The more goals the various project members have in common, the higher the likelihood should be that the success of the project is perceived as personally important for everybody. Moreover, the tight **interweaving of the individual goals** should support a sense of identification and a climate of trust in the project, because everybody is pursuing the same interests. Here, a central management function is to **keep the project members’ attention on the common goals** despite the spatial/temporal distance and to repeatedly make them conscious of them. Moreover, goal setting skills are required, such as the consensual definition of specific and challenging targets and sub-targets. Furthermore, skillful project managers give team members prompt and supportive feedback on their individual degree of goal attainment.

Outcome Interdependence The third starting point for management by interdependence in virtual teams is the **creation and emphasis of the collective results of the project work**, preferably in correspondence with the definition of the sub-goals. Examples of this are financial or non-financial incentives (for example, joint restaurant visits), which are awarded depending on the performance of the entire project team. The creation of goal interdependence underlines that all employees and often their clients, customers, and other stakeholders are ‘all in

the same boat' and consequently foster the sense of identification with and commitment to the virtual project (see also Rack et al. 2011 for a comparison of different concepts of group-based rewards in virtual teams).

Other leadership strategies for virtual project teams are derived from the VIST model as outlined above (Hertel et al. 2004). Depending on the diagnostic results according to the four main components, concrete approaches emerge in order to **increase the motivation of the individual project team members**.

Increasing the Subjective Valence Clear definition of the project goals, removal of any conflicts between project goals and individual goals of each project employee.

Increasing the Perceived Instrumentality of Personal Commitment Clear allocation of the sub-tasks, good (online) documentation of the accomplishment of sub-goals with reference to the wider project (considering the operational arrangements, e.g. performance monitoring), relatively high task interdependence.

Increasing the Experience of Self-efficacy Consideration of non-technical skills (use of electronic communication media etc.) when selecting the project staff, sufficient training of necessary project skills, frequent feedback for the individual project team members, particularly also in terms of positive milestones.

Increasing Trust in the Team The creation of sufficient possibilities for personal acquaintance of the project employees, development of binding rules for communication and conflict management.

Furthermore, the approach of the VIST model can also be used within the scope of regular and systematic feedback systems; for example, the project employees anonymously answer short questions on the VIST components online once a week, with their responses then aggregated and reported at the project level. In addition to a reliable logging of the team processes, such an **online feedback system increases the self-regulation skills** of the project team (Geister et al. 2006).

18.3.3 Training and Team Development

For the beginning of any virtual project work, the relevant literature (e.g. Duarte and Snyder 2006; Nemiro et al. 2008) almost unanimously suggests a "**kick-off**" event at which all involved employees as well as the contact persons who are responsible as important organizational interfaces for the project team should be present. Such a kick-off event fulfills several functions:

The **goals of the project** should be understood by all stakeholders right from the beginning, wherever possible. Above all, the kick-off event offers a

designated virtual project team various opportunities for presenting and discussing their goals. The clearer and more accepted the main goals are, the more unburdened the project management will be due to **self-regulation processes** in the project team.

In addition, the **distribution of roles and duties** can function more efficiently if the goals and also requirements derived from them for each team member are clear. In this respect, a high degree of participation in the establishment of main goals is an important precondition for binding each of the employees to the project.

Moreover, the **kick-off event** is ‘the’ opportunity for the members of the virtual project team **to become personally acquainted**. This lays the foundations for the relationship among the team members and for their communication style in the project work ahead. In comparison to conventional projects, they would have fewer opportunities to share information related to non-project activities.

And, finally, specific **rules** for dealing with one another during the project can and should be agreed during such a kick-off event (Montoya-Weiss et al. 2001). This is all the more important when virtual project team members from different contexts (professional trades, companies, cultures) meet and accordingly possess different habits and expectations with regard to the working style or manner of communication. The example at the beginning of this chapter illustrates differences in **expectations and norms with regard to communication and the sharing of data** between the consultants and the employees of the organization. Specific rules for the virtual project serve to make such cooperation easier and **minimize the sources of conflict**. The contents of such rules can, for example, concern arrangements about how often emails are checked and how quickly they should be responded to, how and when should each employee be accessible, who should receive which information, how conflicts should be handled etc.

- ▶ If the project entails high risks of failure due to individual errors, it should be considered whether certain obligations should be fixed by contract in order to increase the sense of commitment. To achieve a high level of acceptance within the team, all members of the virtual team should preferably contribute to the development of these rules.

Other ways to support the virtual project work consist in **personnel development measures for individuals** (for example, training in communication via electronic media), for **potential managers** of virtual projects, or for **whole project teams** (for example, team development seminars). Such training can be carried out in physical presence sessions, virtual sessions, or even in hybrid forms (‘blended learning’).

In the last years, the training and consulting market has been responding increasingly to this issue. According to a survey conducted in the U.S. with around 2,500 HR managers from several large organizations, approximately 60 % of the organizations do not offer any specific training (Rosen et al. 2006). However, only

7 % of the interviewees judged the training offered in their organization to be effective for virtual cooperation. Thus, there seems to be room for further development in this area. The following topics were mentioned as desirable for future training:

- Leadership of virtual team meetings
 - Coaching of employees working remotely
 - Sensitivity to undesirable developments and diagnosis of problems
 - Efficient application of communication media
 - Development of trust and conflict management in virtual teams
 - Ability to communicate and to handle cultural differences
 - Team development of virtual teams
 - Selection of team members, development of a work plan, and distribution of roles in the virtual team
- For the targeted development/preparation of virtual project teams through training measures or coaching, we recommend conducting an exact needs analysis in advance and not merely relying on a minor expansion of the existing training concepts on topics such as communication or teamwork.

Examples of validated training concepts for virtual teams can be found in more recent handbooks and readers (e.g. Baan and Maznevski 2008; Duarte and Snyder 2006; Nemiro et al. 2008). Central themes of such training concepts include overviews of the success factors for virtual teamwork, the imparting and practicing of basic principles for effective communication with electronic media, and the development of team-specific rules and agreements.

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