

# **Empowerment, team processes, and sourcing team effectiveness**

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## Summary

### *Motivation and research questions*

Companies are increasingly using a team approach for their purchasing and supply management (Driedonks et al., 2010). Sourcing teams are thought to achieve superior performance and competitive advantage in a changing and challenging business environment. Leading-edge companies are switching from sourcing as an individual task to cross-functional, boundary-spanning sourcing teams (Rangarajan et al., 2004).

In recent years there is a growing interest in research on sourcing team effectiveness. This interest might very well have coincided with the more strategic position the purchasing function has earned in organizations in the past few decades. This study aims to provide new insights into sourcing teams and their effectiveness by addressing specific gaps in team research in general and sourcing team research in particular. Antoni & Hertel (2009) highlight the lack on research with regard to mediators (explain how or why effects occur) as well as an important but overlooked moderator (specifies when certain effects hold) of team effectiveness. This study identified three explanatory variables (empowerment, effort, and communication) and a mediating relationship between empowerment – effort and sourcing team effectiveness (empowerment stimulates effort which in its turn increases sourcing team effectiveness). In addition, this study examines the moderator effect of team type (cross-functional versus mono-functional teams) on the relationship between empowerment and team effectiveness as well as between communication and team effectiveness. Additionally we contribute to the current body of knowledge by distinguishing between four sub-dimensions of sourcing team effectiveness. Within the concept of ‘sourcing team effectiveness’ we have made a distinction between team performance (with the sub-dimensions effectiveness and efficiency) and personal success (satisfaction and learning). This study is aimed at investigating the various direct, indirect and mediating relationships that could explain (the various sub-dimensions of) sourcing team effectiveness.

This study addressed the following research questions:

1. What is the impact of team processes (effort & communication) and emergent states (empowerment) on sourcing team effectiveness?
2. What are the mediating (partial or full) effects of effort on the relationship between empowerment and sourcing team effectiveness?
3. What are the moderating effects of team type on the relationship between communication, empowerment and sourcing team effectiveness?

### *Research method*

The literature review has resulted in a conceptual model and 6 related hypotheses. The hypotheses were tested by using survey which were collected from 135 members of Dutch sourcing teams. For the testing of hypotheses we applied multiple linear regression analyses, mediation tests and moderation analyses (see table 1).

### *Results and discussion*

The results indicate that effort, communication, and empowerment have a significant, positive impact on sourcing team effectiveness. The mediation tests acknowledge that effort partially

mediates the relationship between empowerment and team effectiveness. In other words empowerment has both a direct effect and an indirect effect via effort on team effectiveness.

Table 1 Overview of the results of the testing of hypotheses

H	Direct effects	Sourcing team effectiveness			
		Team performance		Personal success	
		Effectiveness	Efficiency	Satisfaction	Learning
1	Effort	X	X	X	X
2	Communication	X		X	
3	Empowerment	X	X	X	X
	<b>Mediating effects</b>				
4	Empowerment -> effort	X	X	X	X
	<b>Team type as moderator for</b>				
5	Communication	X		X	
6	Empowerment				

Note: Xs indicate a significant, positive effect on the respective sub-dimension of sourcing team effectiveness

Mixed results were found for the expected moderator effects of team type. Apparently, team type does moderate the relationship between communication and effectiveness and also the relationship between communication and satisfaction. No other significant moderator effects were found in this study. Yet this study did show that empowerment has a significant, positive impact on sourcing team effectiveness in both mono and cross-functional teams (with the exception of efficiency in cross-functional teams). Furthermore we found that the individual and team-level constructs satisfaction and effectiveness, although theoretically very distinct, are correlated. Therefore we suggest that the two dimensions of team effectiveness operate mutually reinforcing and in line with Bunderson & Sutcliffe's (2003) empirical research need to be balanced to achieve the optimum level of sourcing team effectiveness. A remarkable finding of this study is that communication has no impact on learning, while communication is often considered as a key process to facilitate learning (cf. Decuyper et al., 2010).

### *Recommendations*

First, we recommend practitioners to adequately empower sourcing teams as empowerment seems to be the most critical for achieving sourcing team effectiveness and all of its sub-dimensions. In addition, team leaders and team members should possess the right teamwork and self-leadership KSAOs (i.e. knowledge, skills, abilities and other characteristics). Second, practitioners need to be aware of the important function of communication for teamwork and team effectiveness. This study has shown that the importance of communication heightens as a team's interdependence increases. Third, the cyclical nature of team processes suggest that team effectiveness is not just an outcome, but also an input and process variable in following episodes. In other words teams that are satisfied, have learned and achieved their goals efficiently and effectively raise the prospects for achieving future individual and team goals.

Our conceptual model appears to be quite robust. Therefore we recommend researchers to apply our model in other complex team settings like new product development teams and top management teams. As complex team phenomena are difficult to reveal in mathematical symbols and equations and human language can better grasp these aspects we recommend more qualitative research on teams within our conceptual model and the IMO model.

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# 1 Introduction

## 1.1 Problem statement

During the past decades more companies have recognized the potential of and need for strategic sourcing to contribute to their competitive advantage. Guinipero & Vogt (1997) signal the strategic role of purchasing and a need to become more team-based within and beyond the purchasing function. According to Gelderman & Van Weele (2005) effective participation of purchasing professionals in cross-functional sourcing teams is one of six characteristics that determine the level of sophistication or maturation of the purchasing function. This level refers to the extent to which the function is involved in the strategic decision-making process (Pearson & Gritzmacher, 1990).

Purchasing organizations should allow for cross-functional collaboration in order to capture corporate synergies (Trent & Monczka, 1998). Cross-functional sourcing teams are believed to be an effective tool for achieving purchasing performance (Giunipero & Vogt, 1997; Hardt et al., 2007) and competitive advantage (Trent & Monczka, 1994). In purchasing and sales there is a trend towards a team approach (Driedonks et al., 2010; Lambe et al., 2009). While Rangarajan et al. (2004) note that as the rate of change continues to accelerate most successful organizations move from individuals to cross-functional, boundary-spanning teams.

Although team effectiveness has been studied in a variety of contexts like sales, production, new product development and service organizations (e.g. Lambe et al., 2009; Alge et al., 2003; De Jong et al., 2004; Holland et al., 2000; Pinto et al., 1993), limited and mainly qualitative studies haven't been undertaken in the case of sourcing teams (cf. Driedonks et al., 2010). A notable exception is the large-scale empirical study of Driedonks et al. (2010) in which a number of factors that contribute to sourcing team effectiveness are identified. Their overall conclusion is that 'sourcing team effectiveness depends strongly on the extent to which purchasing organizations have adopted a team management perspective' (p. 113). Furthermore they conclude that management should shift their focus from managing by controlling figures towards employee involvement and team processes. Likewise Walton (1985) reports that self-management is critical for competitive advantage due to an emphasis on employee commitment instead of a control approach to management. However Lambe et al. (2009) conclude that empowerment and management control are complementary

There are several characteristics that apply to a sourcing team, namely boundary spanning, (partly) virtual, cross unit and cross divisional collaboration and complex team arrangements (e.g. temporary and multiple memberships, functional, geographical and cultural diversity). Although these characteristics are not unique to a sourcing team but are shared with other teams like design teams, new product development teams, top management teams and facilities teams (Driedonks, 2011). These complex teams deviate from the former more traditional teams. According to Mathieu et al. (2008) these complex teams better fit the present-day 21<sup>st</sup> century. Mathieu et al. (2008) state that the challenge is to embrace this complexity even though we may very well need a new research paradigm.

Ilgen et al. (2005) recently proposed an alternative for the in team research often used I-P-O (Input-Process-Output) model, namely an Input-Mediator-Output-Input (IMOI) model. In which they replaced the "P" for an "M" in order to demonstrate mediating effects. Furthermore Ilgen et al. (2005) differentiates between three phases or stages within the IMOI

model, namely the IM phase or 'Forming Stage', the MO phase or 'Functioning Stage' and the OI phase or 'Finishing Stage'.

This research aims to contribute to the current body of knowledge on sourcing teams and their effectiveness in at least four important ways. Hereunder the existing gaps in or the contributions of this research to the current body of knowledge are discussed. Thereafter the problem statement of this study will be presented.

In their review Antoni & Hertel (2009) note that there is considerable agreement on the important input (e.g. team design, organizational context and leadership or management control) and process variables (e.g. communication, cooperation, effort, coordination, self-leadership of team members, etc.) of team effectiveness. Yet they state that team process variables are often used as input variables. Antoni & Hertel (2009) also draw attention to a lack on research on team processes (emergent states included) as mediators. In their recent research on sourcing teams Driedonks et al. (2010) found that autonomy is a strong predictor variable of sourcing team effectiveness. Although Driedonks in his 2010 and 2011 studies uses notions like autonomy, authority and empowerment interchangeably. Others (e.g. Kirkman & Rosen, 1999; Lee & Koh, 2001) state that autonomy is only one out of four dimensions that together comprise the much broader and stronger notion of empowerment. Kirkman & Rosen conceive of empowerment as a mediator and their (1999) research shows that its antecedents indeed are mediated on performance and attitudinal outcomes. In this research the impact of three critical variables on team effectiveness in a sourcing team context will be examined, namely two team processes (effort & communication) and an emergent state (empowerment).

In their IMO model Ilgen et al. (2005) stress the important role of mediators in team research. Whereby they differentiate mediators between team processes and emergent states. Ilgen et al. (2005) state that these two types of mediators are also interrelated. Driedonks (2011) tested and confirmed the mediating effects of team processes on the relationship between autonomy and sourcing team effectiveness. Yet in his study autonomy is characterized as an input variable. Whereas in this study in accordance with Kirkman & Rosen (1999) the broader notion of empowerment is regarded as a mediating variable itself. Therefore this study will test for mediation in accordance with the earlier mentioned study of Driedonks (2011). Yet due to the role of empowerment as a mediating variable this study will use Baron & Kenny's (1986) partial mediation model to test for mediating effects (Shrout & Bolger, 2002).

The third contribution of this research addresses the important but in research often overlooked issue concerning the moderating effects of task interdependence on the team process – team effectiveness relationship. Kozlowski & Bell (2003) even state that the knowledge developed in research on teams is of little value when it does not incorporate the concept of interdependence. Antoni & Hertel (2009) note that task structure is not just an input variable but also a moderator of the team process – team effectiveness relationship. Whereby they suggest that task structure can be replaced by task interdependence or team type in empirical research. They note that the findings will enrich both theoretical modelling and the design and implementation of organizational interventions. Yet they highlight the lack on research concerning the moderating effects of task interdependence and team type. Furthermore the little research that was executed shows conflicting results. Therefore this research aims to contribute to the current body of knowledge by addressing this important

topic in team research. We do so by examining the moderating effects of team type on both the team process and emergent state – sourcing team effectiveness relationship.

Delarue et al. (2008) state that it is not easy to formulate an unambiguous and definitive description of “performance” because this is related to the objectives of a particular organization. Yet Antoni & Hertel (2009) identify two key dimensions of team effectiveness that are often used in team research, namely team performance and team viability. This research does not deviate from these accepted dimensions in team research. Therefore this research examines the effects of the three variables on two dimensions of sourcing team effectiveness, namely team performance and personal success. These two dimensions closely resemble Antoni & Hertel’s (2009) dimensions. Yet with the clear distinction that our personal success construct is at the individual level. Whereas Antoni & Hertel’s team viability is clearly a team-level construct. Kowlowski & Ilgen (2006) note a trade-off between the individual and team-level, but argue that most research on team effectiveness does not incorporate or acknowledge this trade-off. Yet this tension or trade-off is a central feature in the management control literature termed goal congruence. The researchers deem it important that the existence of this trade-off is emphasized in team research. Furthermore they are not aware of any previous research on the dimension personal success within a sourcing team context.

The purpose of this study is to investigate the relationships between three critical variables, a moderator and team effectiveness in a sourcing team context. The constructs are applied in the MO (Mediator-Output) phase or ‘Functioning Stage’ of Ilgen et al.’s (2005) recently proposed IMO model that reveals the cyclical and ongoing nature of teams and warrants great promise for future team research in general. With respect to the cyclical nature of the IMO model Mathieu et al. (2008) state that the influence of outcomes on subsequent mediators is more influential than on subsequent inputs. This is due to the fact that emergent states and team processes more likely develop over time. Whereas team inputs are less malleable. The problem statement of this study is formulated as:

***What are the relationships between influential variables in the MO (Mediator-Output) phase of the IMO model in a sourcing team context?***

The problem statement is addressed by the following three research questions:

1. *What is the impact of team processes (effort & communication) and emergent states (empowerment) on sourcing team effectiveness?*
2. *What are the mediating (partial or full) effects of effort on the relationship between empowerment and sourcing team effectiveness?*
3. *What are the moderating effects of team type on the relationship between communication, empowerment and sourcing team effectiveness?*

This research contributes to the current body of knowledge on different types of sourcing teams and their effectiveness by addressing the earlier discussed knowledge gaps and acquires novel insights in the topics of empowerment and self-leadership as well as shared leadership, team processes and team effectiveness in a sourcing team context. Furthermore it offers practitioners firm guidelines for managing, leading and developing those teams and enhancing their effectiveness.

## **1.2 Methodology**

An extensive literature review will provide insight into three critical variables, a moderator and sourcing team effectiveness. The literature review draws on a wide range of literature such as self-managing team literature, leadership literature, management control literature, organizational behaviour literature and social psychology literature.

Based on the literature review hypotheses are formulated and a conceptual model is introduced. The hypotheses are then empirically tested by means of a survey amongst Dutch sourcing team leaders and team members. The survey data are analyzed for reliability and validity. Multiple linear regression analyses, mediation tests and moderation analyses are used to test the hypotheses. The results of the analyses are presented and conclusions are drawn. We then discuss these results and conclusions. At the end we acknowledge several limitations of this study and provide recommendations for future research.

## **2 Empowered sourcing teams, team processes and team effectiveness**

In this brief introduction the Katzenbach & Smith's (1993) definition of a team is introduced. Furthermore the important but sometimes overlooked relation between teams and high performance is highlighted.

Katzenbach & Smith describe a team as 'a small number of people with complementary skills that are dedicated to common goals and sub-goals and a common approach on which they hold one another accountable' (Katzenbach & Smith, 1993 p. 53).

The relation between teams and high performance is emphasized again and again by Katzenbach & Smith (1993). This is clearly expressed in the following citation: 'Performance is nevertheless the primary goal. A team is always the means, never the ends.' (Katzenbach & Smith, 1993, p. 22). Likewise Kuipers & Stoker (2009) note 'since teamwork is intended to achieve organizational goals: i.e. a team is a means to an end rather than an end in itself' (p. 408). Team performance and team effectiveness will be discussed in the first paragraph.

### **2.1 Team effectiveness: team performance & personal success**

Morgeson et al. (2010) identified three categories of performance criteria, namely affective criteria (e.g. satisfaction, commitment, and identification), behavioral criteria (e.g. quality and quantity of task performance and contextual performance that include helping team members or engaging in prosocial behaviours within the organization) and cognitive criteria (e.g. learning and adaptation over time). Morgeson et al. (2010) state there is no ideal criterion or set of criteria, but instead they suggest that future research should select the widest set of criteria that is appropriate.

Antoni & Hertel (2009) use the term team effectiveness in their framework which consists of two dimensions, namely team performance and team viability. In which the first is concerned with team output meeting or exceeding the standards of supervisors, customers or stakeholders and is related to organizational performance. The latter is about whether team processes maintain or enhance the capability and willingness of members to continue their collaboration and if the experiences satisfy the members' needs. Team viability is in the literature also often referred to as quality of working life (QWL)

Hoegl & Gemuenden (2001) state that many authors distinguish between team performance and team viability which are also referred to as task-related outcomes and people-related outcomes. Yet in their research they add another important third dimension, namely learning. Hackman & Wageman (2005) who also follow a similar three-dimensional conception of team effectiveness (adapted from Hackman, 1987) state that for teams to be effective these three dimensions need to be balanced over time

Sourcing team effectiveness is defined as having two components: team performance and personal success. The first component concerns Hoegl & Gemuenden's (2001) task-related outcomes. Lambe et al. (2009) state that team performance is a global measure. They define team performance as the extent to which the performance of a sourcing team is effective and efficient. In this research team performance consists of two sub-dimensions, namely effectiveness and efficiency. The second component in this study, personal success, also stems from Hoegl & Gemuenden's (2001) research and is concerned with people-related outcomes. Hoegl & Gemuenden (2001) state that in addition to team performance the work

should increase team members' motivation and abilities for future teamwork (Hackman, 1987; Sundstrom et al., 1990; Denison et al., 1996). Personal success is defined as 'team members' satisfaction with their work situation and provides an opportunity for team members to acquire knowledge and skills' (Hoegl & Gemuenden, 2001, p. 440). Personal success also comprises two sub-dimensions, namely satisfaction and learning.

Kozlowski & Ilgen (2006) state that team learning is based on individual learning as it moves from individual contribution to team combination. Day et al. (2004) note that team learning is treated as a process and an outcome variable in the literature. Decuyper et al. (2010) state that both processes and outcomes are necessary elements in the case of team learning. Ellis et al. (2003) describe team learning as 'a relatively permanent change in the team's collective level of knowledge and skill produced by the shared experience of the team members' (Ellis et al., 2003, p. 822). It clearly marks their definition of team learning as an outcome variable. An interesting finding stems from a recent study on team learning. Bunderson & Sutcliffe (2003) found that both too much and too little emphasis on learning will detract from performance.

Ilgen et al. (2005) included a categorization of affective, behavioural and cognitive aspects of team development and in doing so they created a 3x3 framework. In the MO (Mediator-Output) phase or 'Functioning Stage' these aspects were labelled bonding, adapting and learning. Ilgen et al. (2005) state that constructs such as group cohesiveness, team viability, satisfaction with the group and commitment are regarded as representative of bonding activities. Whereas learning is a precursor of adaptation. Thereby one could envision that outcomes such as satisfaction and learning that comprise our personal success construct, formed at earlier cycles can function as input and process variables at a subsequent 'Functioning Stage'. Similar cyclical representations and their impact on different levels were made by Wiggins & Crowston (2010) who constructed a conceptual IMO model. For example, at the individual level personal success can increase motivation and learning can raise an individual's ability to contribute to the team. Likewise at the team level learning can lead to innovations in team processes. Furthermore positive team performance can increase the team members' interest in teamwork as well as the teams' visibility within the broader organization resulting in additional training, empowerment, support, information, resources, etc.. At the organizational level team success will affect the participation in and the perception of teams' within the organization, create learning opportunities and enable knowledge production and distribution at an unprecedented pace and scale (Cohn, 2008).

Zaccaro et al (2001) distinguish between three fundamental characteristics of effective team performance, namely team processes, team leadership and complex and dynamic environments. They note that team processes are a critical determinant of team performance which often mediates the impact of most exogenous variables. Furthermore they state team leadership could be the most critical driver in the success of teams and team processes. Yet few team performance models acknowledge that leadership processes are pivotal for this success. Another key point is the reciprocal relation between leadership and team processes. All three characteristics will be elaborately discussed in the next three paragraphs.

## **2.2 Team processes: effort & communication**

Marks et al. (2001) aimed at advancing future studies of team effectiveness by proposing a framework and taxonomy of team processes in which they differentiated between task work, team processes and emergent states. The latter will be discussed in the next paragraph. In this

paragraph attention will be paid to two dimensions of team processes, namely effort and communication.

Marks et al. (2001) define team processes as ‘members’ interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioural activities directed toward organizing task work to achieve collective goals’ (p. 357). Task work is defined as ‘a team’s interaction with tasks, tools, machines and systems’ (Marks et al., 2001, p. 357). Salas et al. (1992) argue that both task work and teamwork skills are necessary to perform effectively.

Likewise Day et al. (2004) refer to teamwork as ‘a set of interrelated and flexible cognitions, behaviours and attitudes that are used to achieve desired mutual goals’ (p. 863). Thereby the cognitions, behaviours and attitudes correspond to the team members’ competencies or KSAOs (i.e. knowledge, skills, abilities and other characteristics) which are required for team effectiveness to be more than the sum of its parts, namely the effort of all team members.

In their research on team development and performance Kuipers & Stoker (2009) identify three team processes that cover all the theoretical ideas, namely task management, internal relations and external relations & improvement. According to these researchers the processes are related to the earlier (recurring) phase models (e.g. Marks et al, (2001)) and the process models of Gladstein (1984) and Dunphy & Bryant (1996). The latter distinguish between three team attributes, namely technical expertise, self-management and self-leadership which can also be regarded as processes (Kuipers & Stoker, 2009). If teams are self-leading they can play a strategic role as well as improve communications within and beyond the team (Dunphy & Bryant, 1996). In contrast to the phase models that adhere to growth in different phases leading up to a high performance phase. Kuipers & Stoker’s (2009) processes are parallel and can be developed simultaneously.

Kowlowski & Ilgen (2006) categorized team processes into three types, namely team behavioural (e.g. communication, coordination, cooperation, team member competencies, team regulation, etc.), team cognitive (e.g. team climate, team mental models, team learning, etc.) and interpersonal, motivational / affective team processes and emergent states (e.g. team efficacy, potency, team affect, etc.). Whereby communication, coordination and cooperation address what teams do to combine team members’ effort and action to achieve team effectiveness (Bell & Kozlowski, 2010). Wherein communication functions as the means to facilitate coordination and cooperation. According to Kowlowski & Ilgen (2006) their process categories are reflected in a teams’ competencies (KSAOs) that underlie effective teamwork.

Bell & Kozlowski (2010) express the pivotal role of effort and communication in obtaining team effectiveness. Driedonks et al. (2010) note that these two team processes effort and communication (internal & external) will due to the nature of sourcing tasks have a particularly important function in achieving sourcing team effectiveness. Therefore these concepts whom represent two dimensions of team processes in our conceptual model will be further discussed below and this discussion will lead to the formulation of two hypotheses.

A teams’ effort impacts directly on its success (Hackman 1987). This proposition relates to the general assumption that a high level of effort exerted by all team members is critical for high performance and of utmost importance for the quality of collaboration in a team (Hoegl & Gemuenden, 2001). Weingart (1992) showed that effort has a significant, positive effect on team performance at the team level of analysis. Trent (1998) accordingly notes that a sourcing teams’ effort is critical for success. This is even more so in the case of sourcing teams because

not rarely its members will only have a part-time membership. This part-time membership can result in conflicting objectives and prioritizing non-team responsibilities (Englyst et al., 2008; Riketta & Nienaber, 2007).

Perry et al. (1999) propose a model in which effort, communication and citizenship behaviour are related to team effectiveness in a selling team context. Whereas Driedonks et al. (2010) test the relation between effort and team effectiveness in a sourcing team context and find a significant, positive effect. Hoegl & Gemuenden's (2001) research shows that teamwork quality a higher order construct consisting of six facets (effort, communication, coordination, mutual support, cohesion and balance of member contributions) has a significant, positive effect on both our sourcing team effectiveness criteria, namely team performance and personal success.

It is hypothesized that:

**H1.** Effort has a positive impact on sourcing team effectiveness.

Hoegl & Gemuenden's (2001) research shows that communication is also an important antecedent of team performance and personal success that together comprise the sourcing team effectiveness construct. Furthermore it is like effort an important mediator between team input variables and team outcomes (Driedonks, 2011; Cohen & Bailey, 1997). Hoegl & Gemuenden (2001) state that internal communication is the key to teamwork quality. They characterized the quality of communication in terms of frequency, formalization, structure and openness. Whereby openness is crucial for teamwork quality, because openness facilitates the most fundamental function of teamwork, namely integration (Hoegl & Gemuenden, 2001). Likewise Driedonks et al. (2010) note that internal communication is needed to exchange information and knowledge. They note that sourcing teams as boundary spanners need to communicate with both internal and external stakeholders and so both internal and external communication are crucial for sourcing team success. Again Driedonks et al.'s (2010) research shows that the relationship between communication (internal & external) and sourcing team effectiveness is both significant and positive.

**H2.** Communication has a positive impact on sourcing team effectiveness.

According to Karoly (1993) the psychological models of motivation, performance and learning at the individual level are in essence models of self-regulation. DeShon et al. (2004) show that regulation and performance are multilevel phenomena that take place at both the individual and team level simultaneously. Thereby the primary force of individual resource allocation and team performance is either individual or team goal feedback loops. So there exists a trade-off between individual and team feedback and performance. Yet most research on team performance either starts from the individual level—denying the nesting of individuals in a team—or from the team level—denying the contributions of individuals to team processes and outcomes (Kozlowski & Ilgen, 2006). They state team regulation (i.e. team self-management) is an important antecedent of team performance and so they conclude that team members with more matured teamwork and regulation KSAOs will be more effective. Following Kozlowski et al. (1996) Kozlowski & Ilgen (2006) state that the basic thesis of team regulation is: 'The role of the leader is to develop, utilize, and maintain the coherence of team regulatory processes' (p. 110). Team leadership and team training are seen as key levers for developing self-regulation and can or should be adapted to team regulation.

Hackman & Wageman (2005) developed a theory of team coaching. They state that the focus in novice teams is on the processes (effort, performance strategies and team members knowledge and skills). While more mature teams will focus on strategies of self-regulation. Higher levels of maturity then decrease the dependence on the team leader which is visualized in a control graph in figure 1.

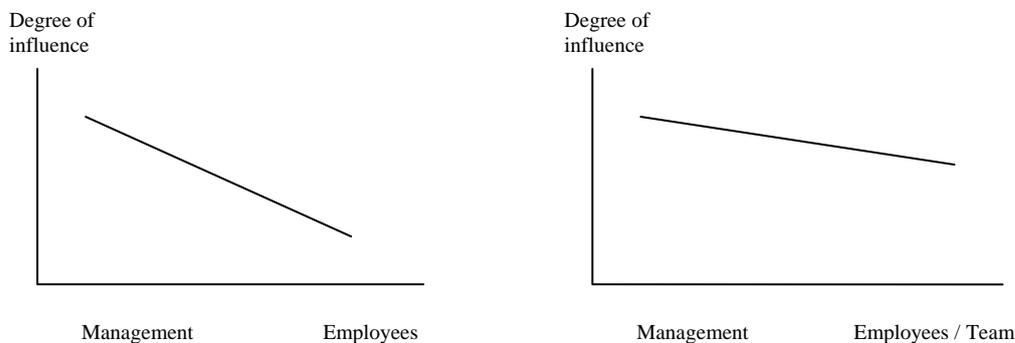


Figure 1 Control graph  
Source: Leede & Clarenbeek, 2002

According to Leede & Clarenbeek (2002) the control graph has appeared to be an important indicator in change processes towards self-management. Similarly Marks et al. (2001) summarize that two strategies are effective. Firstly create a balanced constellation of team KSAOs and thereafter the transition towards self-directed or empowered teams should enable teams to be successful over time in changing conditions. In the next paragraph self-directed or empowered teams will be discussed elaborately.

### 2.3 Empowered sourcing teams

Belbin (2010) states that although team leadership still seldom appears, it has gained more prominence in recent years. Two reasons are given to explain this. The first reason is a world of growing uncertainties characterized by continuous change. Secondly team leadership is the only form of leadership that is accepted in a society where power is shared and so many people are each others equals. Solo leadership prevails if urgency (e.g. crisis) is required (Belbin, 2010; Pearce & Manz, 2005). Whereas team leadership is more appropriate in the case of complexity (Belbin, 2010), creativity and innovation, interdependence and employee commitment (Pearce & Manz, 2005).

In a recent review Mathieu et al (2008) point out that three aspects of team leadership hold particular promise in future research, namely external team leaders, shared leadership and team coaching. The first two aspects of team leadership are object of study in this research. In which the first, discussed in the second subparagraph, is titled empowering team leader. This concept is at the individual level and composed of the concepts empowerment and self-leadership. While shared leadership, discussed in the third subparagraph, is at the team level. In the first subparagraph the concept of inner or self-leadership is introduced and related to the empowerment concept. The final fourth subparagraph further elaborates the empowerment construct and two hypotheses will be formulated.

#### 2.3.1 Inner or self-leadership

Morgeson et al. (2010) state that the notion of self-management roots in the behavioural theories of self-control (Thoresen & Mahoney, 1974) and the social learning theory (Bandura,

1977). Manz & Sims (1980) first address the idea of self-management as a substitute for formal leadership.

In their review Delarue et al. (2008) propose an autonomy-interdependence matrix in which their two extremes bear a strong resemblance with Hackman's autonomy typology. On the basis of the degree of autonomy Hackman (1986) differentiates between group decision making concerning the work, managing and monitoring, the design of the group and leadership and direction which results in four different groups, namely manager-led, self-managing, self-designing and self-governing groups. In figure 2 Hackman's autonomy typology is drawn in an autonomy-interdependence matrix.

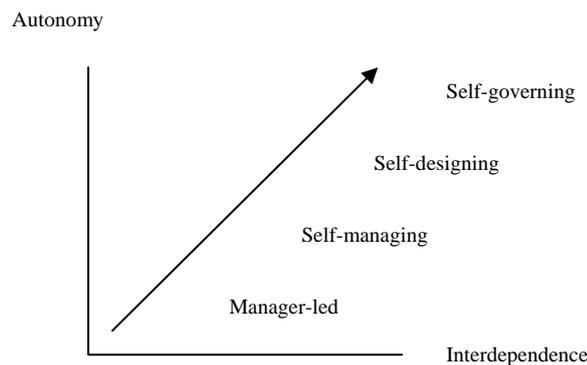


Figure 2. Hackman's autonomy typology in an autonomy-interdependence matrix

Stewart et al. (2011) note that self-leadership from both the individual- and team-level perspective is not a discrete construct, but it falls along a continuum as depicted in figure 2. Manz (1992) states that this continuum ranges from low for behavior that is externally governed or manager-led to high for behaviour that is self-leading or self-governing. Between external control and self-leadership lies self-management,

Manz (1991) uses three underlying questions "What?" "Why?" and "How?" to distinguish between self-leadership and self-management. Whereby he describes self-management as 'a self-influence process and set of strategies that primarily address how work is performed to help meet standards and objectives that are typically externally set . . . [it] tends to rely on extrinsic motivation and to focus on behavior' (Manz, 1991, p. 17). Self-leadership is described as 'a self-influence process and set of strategies that address what is to be done (e.g., standards and objectives) and why (e.g., strategic analysis) as well as how it is to be done . . . [it] incorporates intrinsic motivation and has an increased focus on cognitive processes' (Manz, 1991, p. 17).

Stewart et al. (2011) state that the continuous nature of the self-leadership construct is often being ignored, particularly at the team level. Although studies refer to teams as self-managing or self-leading they ignore that the self-leadership construct is continuous rather than discrete (Guzzo & Dickson, 1996; Kirkman et al, 2004).

Cohen et al. (1997) state that Manz & Sims (1987) Self-Management Leadership Questionnaire (SMLQ) is based on Bandura's (1977) social learning theory. The essence of self-management leadership is about developing team member self-efficacy which provides team members with the confidence and competence to lead themselves. Self-management leadership is also a hierarchical concept orientated towards the empowerment of team members. Cohen et al. (1997) were the first to replicate and extend the study of Manz & Sims

(1987) and show that the self-management leadership construct relates positively and significantly to both perceived team effectiveness and quality of work life (QWL). According to Cohen et al. (1997) SMLQ is a valid measure of self-management leadership behaviours and is related to important outcomes.

Based on the work on psycho-synthesis of Roberto Assagioli and others Smith (2000) explains the concept of inner leadership or self-leadership. In figure 3 the concept of inner leadership is visualized and this visualization is briefly discussed.

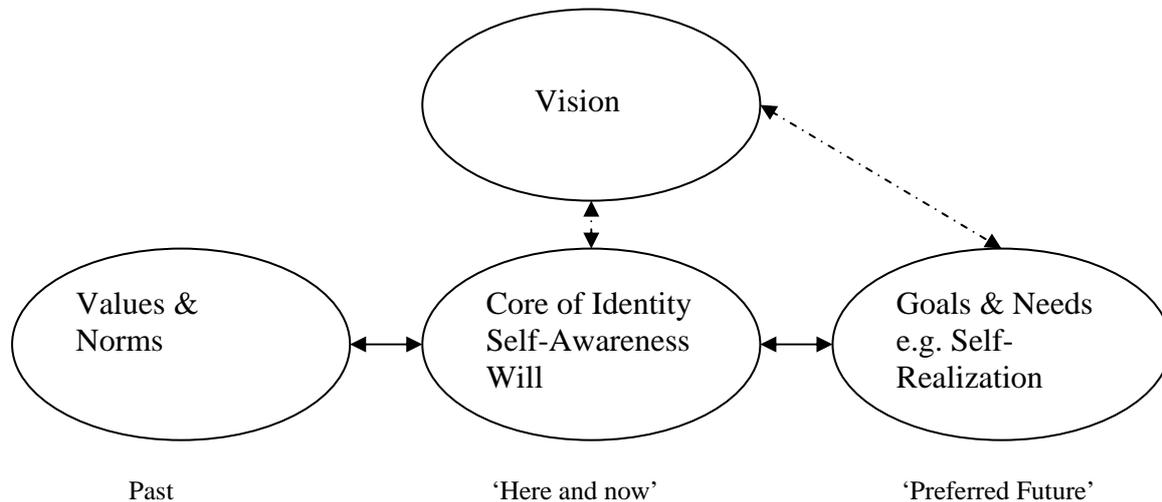


Figure 3 Inner leadership or self-leadership

The purpose of psycho-synthesis is to heighten the quality and effectiveness of our lives by increasing our choice options. It is a disciplined process to discover our self awareness and develop our personality. It involves two stages of which the first is concerned with acquiring self awareness or insight into the core of our identity. The second stage is about practicing inner leadership and attempting to come on a par with our guiding principles, our most important goals & needs and values & norms. Whereby the core of our identity is a force that connects our values & norms with our goals & needs whom provide a context to live and work in as well as meaning to life and work. Our will is an internal, driving and mobilizing force or energy that allows us to realize who we really want to be. The most important aspect of operating from our will is now exactly that we are aware of what we are going to do and how we are going to do that. If we develop our will we can raise the effect of all our future efforts. Finally self-realization or self-actualization is then that one discovers and then learns how one can live from the own core (Smith, 2000).

Musch & Burg (1999) note that inner leadership or self-leadership is the core of empowerment. In a conceptual paper Lee & Koh (2001) discuss numerous concepts that have replaced empowerment in the organizational behaviour literature like authority delegation (e.g. Burke, 1986), motivation (e.g. Hackman & Oldham, 1980), self-efficacy (e.g. Gist & Mitchell, 1992), autonomy (e.g. Block, 1987; Evans & Fischer, 1992), self-determination (e.g. Deci et al., 1989), self-management (e.g. Mills, 1983; Luthans & Davis, 1979), self-control (e.g. Manz, 1986; Thoresen & Mahoney, 1974), self-influence (e.g. Manz, 1986), self-leadership (e.g. Manz & Sims, 1991). Lee & Koh (2001) conclude that empowerment relates strongly to leadership or self-leadership, but lacks the impact dimension and so it is not a substitute for self-leadership. Thereby Lee & Koh (2001) refer to impact as 'the perception of the degree to which an individual can influence strategic, administrative or operating outcomes at work (p. 686). They draw their conclusion on the basis of Manz & Sims (1991)

definition of self-leadership as ‘the influence we exert on ourselves to achieve the self-motivation we need to perform’ (p. 23) whom discussed empowerment in relation to self-leadership (e.g. Manz, 1986; Manz & Sims, 1991). Yet Manz (1986) has clearly expressed and even visualized that self-leadership in contrast to self-management not only addresses the existing standards, but in addition, similar to the concept of double loop learning, addresses and even challenges the higher-level super-ordinate standards (reasons for behaviour) to better capture the role of intrinsic motivation. Manz’s aforementioned (1991) definitions of self-management and self-leadership also clearly address this difference between the two concepts. On the basis of Manz’s (1986) reasoning and his (1991) definitions it is suggested that the concept of self-leadership does not lack the impact dimension as is concluded by Lee & Koh (2001). Therefore we suggest that self-leadership can be seen as a close substitute for empowerment. Furthermore Lee & Koh (2001) have stated that empowerment is like self-leadership a continuous variable.

### **2.3.2 Empowering team leader**

In a recent meta-analysis on leadership behaviours in teams Burke et al. (2006) distinguish between two types of leadership, namely task-focused and person-focused. In which the first consists of transactional leadership, initiating structure and boundary spanning and the latter of transformational leadership, consideration, empowerment and motivation. Another noteworthy theory of leadership is Leader-Member Exchange (LMX) which is dyadic and has a process orientation with a developmental basis (Kozlowski & Ilgen, 2006). In LMX team members view themselves and are viewed by others concerning the sharing of the leadership responsibilities with the team leader (Kozlowski & Ilgen, 2006). While Day et al. (2004) argue that leadership is an outcome of the interrelationships among team leader and team members.

According to Stewart et al. (2011) empowering leadership creates what Cox et al. (2003) refer to as ‘a more robust, flexible, and dynamic leadership infrastructure’ (p. 172). Furthermore it relates to a practical approach to leadership which empowers team members to lead themselves (Manz & Sims, 1990, 1991, 2001). Empowering leadership is defined as ‘behaviours whereby power is shared with subordinates and that raise their level of intrinsic motivation’ (Srivastava et al., 2006, p. 1240). Empowering leadership showed strong effects on individual and team behaviour (e.g., Arnold et al., 2000; Srivastava et al., 2006). Pearce & Sims (2002) and Pearce et al. (2004) have found a positive relation between empowering leadership and performance outcomes like problem-solving quality and team effectiveness. Furthermore Burke et al. (2006) found that empowering behaviours account for almost 30% of the variance in team learning.

Stewart et al. (2011) note a paradox in that external leadership (focused on empowering individual and team self-leadership) is both consistent with and a component of effective self-leadership in practice (Manz, 1991; Manz & Sims, 1987, 1990, 1991).

Pearce & Manz (2005) state that a key way to foster self-leadership as well as shared leadership is by the team leaders’ own practice of self and shared leadership. Team leaders serve as role models for team members by demonstrating initiative and self-leadership practice as well as sharing and encouraging the leadership process.

Stewart et al. (2011) note a critical interplay between self-leadership and external leadership. Empowering and shared leadership are critical forces that shape internal self-leadership. Thus,

self-leadership is not a complete substitute for external leadership. The role of the team leader changes yet support and help are still needed. Furthermore there is a lack of research on how informal internal leadership either provides the same encouragement as team leaders or how these interact in inflicting self-leadership and team effectiveness (Morgeson et al., 2010).

### 2.3.3 Shared leadership

Morgeson et al. (2010) have identified four distinctive sources of leadership in teams which are shown in table 2. According to Morgeson et al. (2010) research tends to limit itself to one source of leadership and thereby undervaluing the total of team leadership. Day et al. (2004) state that it is necessary to consider all the sources of team leadership to develop a full understanding of team-level leadership and its processes. According to Day et al. (2004) team-level leadership consists of human capital that addresses the individual's KSAOs as well as social capital that encompasses the networked relationships of team members.

Table 2 Sources of Leadership in Teams

	Formality of Leadership		
		Formal	Informal
Locus of Leadership	Internal	Team leader Project manager	Shared Emergent
	External	Sponsor Coach Team advisor	Mentor Champion Executive coordinator

Source: Morgeson et al., 2010

Pearce et al. (2009) see leadership as more than a role. Team leadership is also a social process that involves both the team members and the team leader. This notion is then termed shared leadership and it connects individual self-leadership to work teams (Pearce et al., 2009). Shared leadership is defined as 'an emergent team property that results from the distribution of leadership influence across multiple team members' (Carson et al., 2007, p. 1218). Whereas Katzenbach & Smith (1993) refer to shared leadership as empowerment. Their in-depth study shows that shared leadership is more strongly associated with team effectiveness because high-performance teams more actively engage in shared leadership than other teams.

### 2.3.4 Emergent states: empowerment

Mathieu et al., (2008) distinguish between two types of empowerment, namely structural and psychological. In which the second is an emergent state (Mathieu et al., 2008) and a motivational construct (Lee & Koh, 2001). Marks et al. (2001) define emergent states as 'constructs that characterize properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes, and outcomes' (p. 357). Wiggins & Crowston (2010) state that emergent states represent the dynamic team properties (cognitive, motivational and affective states) that develop over time and in relation to the context. Lee & Koh (2001) define empowerment as 'the psychological state of a subordinate perceiving four dimensions of meaningfulness, competence (self-efficacy), self-determination and impact, which is affected by empowering behaviours of the supervisor' (Lee & Koh, 2001, p. 686).

Conger & Kanungo (1988) note that power and control are the root constructs of empowerment. According to Yukl (2002) power and influence are two related yet different concepts. Power is concerned with the structural component of authority and the behavioural

component of influence (Bacharach & Lawler, 1980). According to Douglas & Gardner (2004) influence tactics reflect a manager's position and personal power and are important for follower commitment and the success of the empowerment process. Yukl & Tracey (1992) report that referent and expert power (personal power) most likely acquire follower commitment rather than compliance. Cummings (1978) notes that commitment is pivotal for successful team self-management and therefore it is assumable that influence and personal power foster team self-management and team effectiveness.

Conger & Kanungo (1988) also address empowerment as a motivational construct and relate it to the self-efficacy theory of Bandura (1977, 1986). Empowering or enabling is enhancing employees beliefs in their own effectiveness which has a direct impact on their behaviour by the amount of effort and the duration of employees persistence. Cooney (2004) turns to the self-efficacy theory of Bandura and reveals that the experience of competence which leads to self-efficacy is highly dependent on the self-monitoring of tasks and their outcomes. Furthermore the self-efficacy experiences are formed in relation to managers and others and therefore the motivational power of empowerment also depends on those managers and others. This relation is confirmed in empirical research which showed that external team leader behaviour influences team empowerment experiences (Kirkman & Rosen, 1999; Druskat & Wheeler, 2003). Kirkman & Rosen (1999), who treat team empowerment as a mediator, show that team empowerment has a positive, significant effect on both performance outcomes (productivity, pro-activity and customer service) and attitudinal outcomes (job satisfaction, organizational commitment and team commitment). Furthermore they conclude that autonomy or self-determination is the strongest dimension of team empowerment as it explains some unique variance in team effectiveness. Cooney (2004) even mentions a natural evolution in the literature of the earlier concept of autonomy to empowerment. Driedonks et al. (2010) show that autonomy has a positive, significant effect on sourcing team effectiveness.

**H3.** Empowerment has a positive impact on sourcing team effectiveness.

Ilggen et al. (2005) criticize the I-P-O model for its linear progression. They draw attention to the various interactions between inputs and processes (I x P), between processes (P x P), and between inputs or processes and emergent states (ES). Their reasoning was already confirmed in the previous paragraph which stated that empowerment (ES) has a direct impact on effort (P). Likewise Tata and Prasad (2004) state that team self-management increases team effectiveness both indirectly by team members' responsibility and ownership whom are linked to intrinsic motivation (Deci et al, 1989), job satisfaction (Lawler, 1986) and effort (Manz, 1992) and directly by lowering the decision-making authority to the operational level to improve problem solving. Driedonks (2011) research shows that effort mediates the relation between autonomy and sourcing team effectiveness.

**H4.** Effort mediates the relationship between empowerment and sourcing team effectiveness.

The management control literature states that the central purpose of management control systems is influencing human behaviours in a goal congruent manner. Thereby goal congruence addresses employees actions to be in the best interest of both themselves and the organization (Anthony & Govindarajan, 1998). Merchant & Van der Stede (2003) on the basis of the object of control distinguishes between four types of control, namely action, result, personnel and cultural control. The latter two concern the employees and their norms and values. According to Merchant personnel controls have three purposes: clarify expectations,

ensure that all the capabilities and resource needed to do a good job are available and self-monitoring or self-control. While cultural controls encourage mutual-monitoring through group norms. Furthermore personnel controls are implemented by selection, placement and training of employees, job design and provision of necessary resources. Merchant & Van der Stede (2003) mention that actions controls were replaced with soft (personnel and cultural) controls in the 1990s due to the empowerment process. During the empowerment process power is not just redistributed but also created (Guinipero & Vogt, 1997). Which has also been addressed by Park (1997) who mentions a positive sum game of power.

## 2.4 Team type and task structure / interdependence

Antoni & Hertel (2009) note the moderating effects of task structure and team type. Thereby they state that the type of team might be used as a first estimate on the type of task structure. In their review Cohen & Bailey (1997) differentiated between four types of teams, namely parallel, work, project and management teams. These four different types of teams are shown in figure 4. Others have differentiated teams on the basis of external integration and differentiation (Sundstrom et al, 1990) or participation /self-regulation (Antoni, 1990). Antoni & Hertel (2009) state that the degree of task interdependence could be used as a replacement of task structure. Thompson (1967) proposed a hierarchy of task interdependence, namely pooled, sequential, reciprocal (Thompson, 1967), and team (Van de Ven et al., 1976). These four types of task interdependence are illustrated below in figure 5.

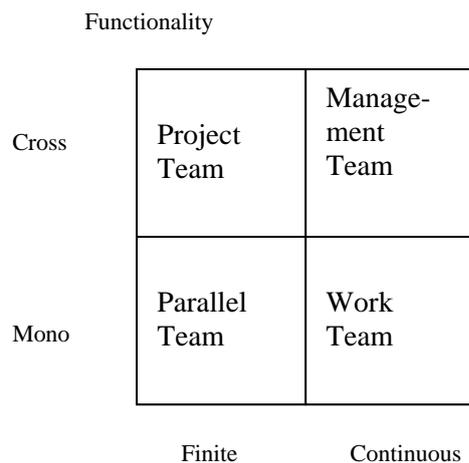


Figure 4 Four types of teams

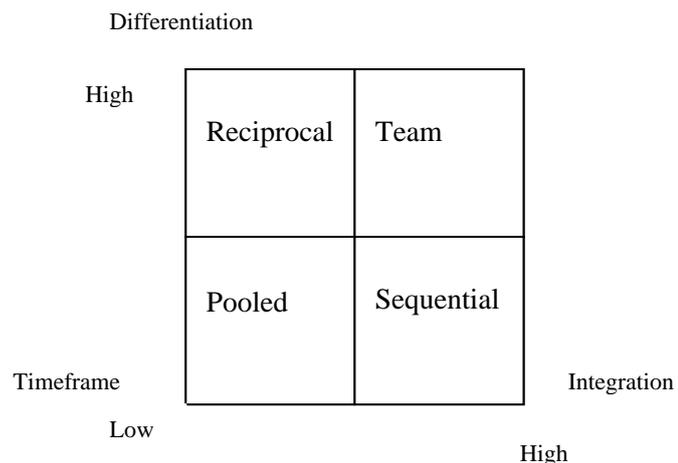


Figure 5 Four types of task interdependence

Antoni & Hertel (2009) argue that there has been little research on the differential effects of types of teams or task interdependence. A key characteristic of teams is the existence of interdependence. Uhl-Bien and Graen (1998) note that cross-functional teams need interdependent and integrative work processes for problem solving. Hoegl and Gemuenden (2001) state that teams are a mechanism for integrating different skills in the case of complex and uncertain tasks. Interdependence is addressed by Lawrence and Lorsch's differentiation/integration concept as shown in figure 5. The concept states that for effective integration to occur as differentiation increases so too need coordination and integration mechanisms. Another of their noteworthy conclusions is that the way in which an organization is structured needs a situational or contingent approach.

Thompson (1967) states that an increase in task interdependence will need to result in higher requirements for coordination, communication and cooperation for teams to perform effectively. Bell & Kozlowski (2010) noted earlier that communication is the precursor or

means to facilitate coordination. Therefore the literature shows convergence on the idea that communication, coordination and cooperation will have different effects on team effectiveness in different settings (e.g. types of teams or task interdependence).

Gladstein (1984) hypothesized that task structure would moderate the relation between group process (open communication, discussion of performance strategies, and boundary management) and effectiveness. According to Gladstein these processes foster internal and external communication. Although Gladstein found no moderation effects she concluded that 'Despite the results of this study, task cannot be ruled out as an important factor in understanding group behavior' (1984, p. 508-509). Likewise Stewart & Barrick (2000) contrary to their hypothesis found no moderating effects of task structure on the relation between communication and team performance.

**H5.** Communication has a stronger impact on sourcing team effectiveness in cross-functional teams than in mono-functional teams.

The literature shows that the emergent state empowerment is a key driver of team effectiveness which has both direct and indirect effects. Yet little research has been undertaken concerning the moderating effects of types of team or task interdependence on this relationship. Furthermore these studies showed conflicting results. Hereunder some studies will be discussed.

In their review Cohen & Bailey (1997) discussed the moderating effects of autonomy (substantive participation) and consultative participation in three out of four team types. In the case of work and parallel teams they concluded that substantive participation or autonomy had a positive impact on performance, attitudinal and behavioural measures. Whereas consultative participation did not show those effects. However in the case of project teams autonomy was not related to higher performance. For instance, self-management did not significantly relate to the project team members' perception of effectiveness. Yet leadership did strongly correlate with those perceptions (Levi & Slem, 1995). Although Cohen & Bailey (1997) discussed emergent states or group psychological traits. None of their concepts reflected our empowerment construct and therefore these results are not discussed. In a meta-analysis. Burke et al. (2006) found that task-focused leadership explained 11% of the variance in highly interdependent teams versus 1% in teams with a low task interdependence. Person-focused leadership similarly accounted for 12% versus 5%.

Perry et al's (1999) earlier mentioned model also includes a relationship between task characteristics (interdependence and complexity) and team effectiveness which is moderated by shared leadership. They state that shared leadership can only exist in fully empowered selling teams. Furthermore they conclude that shared leadership is more appropriate when the task is complex and highly interdependent. In such a situation shared leadership can foster team attitudes, beliefs and behaviours and thereby heighten a team's effectiveness. Similarly Cordery et al. (1997) have concluded that team self-management has a greater impact in the case of complex tasks than routine tasks.

In a meta-analysis Gully et al. (2002) showed that both task-specific team-efficacy and generalized potency have a positive impact on performance. Furthermore interdependence moderates the relationship between team-efficacy and performance, but not between potency and performance. The aforementioned relationship is stronger in high interdependent settings in comparison to low interdependence. Additionally they conclude that these relationships are

moderated by level of analysis. In the next chapter the level of analysis in team research in general and in this study in particular will be extensively discussed.

**H6.** Empowerment has a stronger impact on sourcing team effectiveness in cross-functional teams than in mono-functional teams.

## 2.5 Conceptual model

The literature review has resulted in a conceptual model for the explanation of sourcing team effectiveness, see figure 6. The model consists of:

- empowerment, effort, and communication as the 3 explanatory variables with an assumed direct effect on sourcing team effectiveness,
- a mediating effect of empowerment on sourcing team effectiveness through effort
- team type as a moderator for the relationship between 2 variables (empowerment and communication) and sourcing team effectiveness.

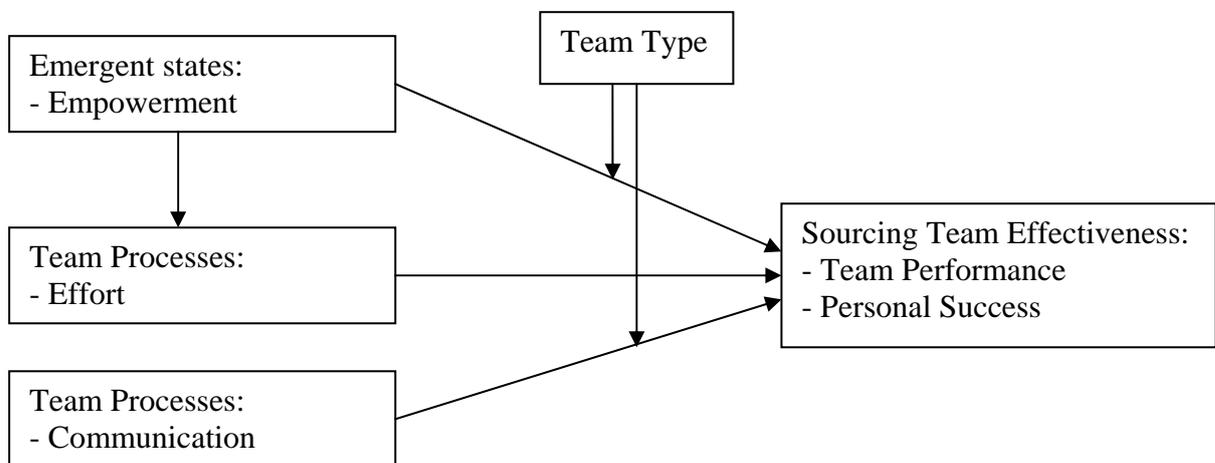


Figure 6 Conceptual model

Kuipers & Stoker (2009) identify three types of team development models, namely phase, recurring phase and process models. Whereas Mathieu et al., (2008) distinguish between developmental models, episodic and cyclical approaches. The first models identified in both articles can be labelled linear models and so too can the earlier discussed I-P-O model. In our view the IMO model is the first to stand out as a true polarities model. Banet (1976) differentiated between three models of group development, see table 3.

Table 3 Three Models of Group Development

	Linear model	Spiral model	Polarities model
Group progress	Progressive	Regressive	Cyclical
Time perspective	Future	Past	Present
Group goal	To learn	To heal	To grow, learn
By means of	Social skills	Personality integration	Self-actualization
Focus on	Group	Group	Individual
Observation basis	Interpersonal	Historical	Intrapersonal
Central process aspect	Group	Contextual	Individual and relational

Source: Banet (1976)

## **3 Research method**

### **3.1 Approach**

In order to test the hypotheses a cross-sectional survey is conducted amongst leaders and members of sourcing teams. Hypotheses were tested, using multiple linear regression analyses, mediation tests and moderation analyses. The validity of the construct was tested by means of factor analyses and reliability analyses.

NEVI, the Dutch association of purchasing professionals, is the network for knowledge on purchasing and supply management and is nationally and internationally renowned for its training programmes and other activities. With the aid of NEVI a questionnaire was brought to their members' attention. The survey was presented to the purchasing professionals in a web-based questionnaire by using [www.thesistools.com](http://www.thesistools.com). Main reasons for the web-based questionnaire are convenience and ease of use for both respondents and researchers.

### **3.2 Sample and data collection**

This research intends to acquire a broad range of respondents from very different organizational settings thereby raising the external validity of its results. In order to accomplish this the Dutch association of purchasing professionals (NEVI) has been contacted and asked to support the research by bringing a short introduction and a web-based questionnaire to its members notice via a summons on its website and in the February issue of its e-newsletter. For reasons of comprehensibility and convenience the survey is held in the Dutch language and so the original items in English are translated. This is done to further heighten the response rate and maybe even construct validity. Furthermore all items are non-randomized in the questionnaire.

The research has not only attracted the respondents' attention but additionally got the attention of various organizations that showed strong interest and support for the research. These organizations (e.g. [www.aanbestedingsmakelaar.nl](http://www.aanbestedingsmakelaar.nl), [www.inkopers-cafe.nl](http://www.inkopers-cafe.nl) and the Open University of the Netherlands) have done so by placing the introduction and the link to the questionnaire on their website and the Open University additionally placed a summons to participate in the survey in one of its e-newsletters. The researchers were at first surprised with this extra support and interest in their research for which they had made no preparations. Of course they are very pleased with the additional support and interest.

### **3.3 Level of analysis**

Kirkman & Rosen (1999) state that team-level phenomena can be measured by using team member data in the following three ways. Respondents rate individual or team-level attributes and these are then aggregated to form the team score. Thirdly consensus ratings can be acquired. However due to the method of data collection in this study aggregation of the individual and team-level phenomena is impossible. Gully et al. (2002) have noted the importance of the level of analysis for team research and the discussion hereunder will reveal the benefits of our non-aggregation approach.

In their meta-analysis Gully et al. (2002) found that the relationship between team-efficacy and potency on performance is significantly moderated by the level of analysis. The moderator analysis shows that the relationship is substantially weaker at the individual level

(estimated true  $p = 0.20$ ) than at the team level (estimated true  $p = 0.39$ ). Therefore they conclude that it is crucial in team research to address the issue of level of analysis. Whereby the team is the appropriate level of analysis for research on team processes and outcomes. Furthermore they conclude that it is possible for a study to measure individual team-efficacies or potencies and relate those to individual outcomes with team-level characteristics as moderators. This is due to the fact that individual perceptions can be distinguished from team perceptions theoretically as well as statistically (Gully et al., 2002).

Kirkman & Rosen (1999) do not use objective performance outcomes due to the incomparability of these measures within and across organizations. Therefore Kirkman & Rosen (1999) have used self reported data from team leaders and members for their outcome measures. In this study all data are self reported data from team leaders and team members. Thereby a second concern within this study is exposed, namely the issue of same source bias. Podsakoff & Organ (1986) extensively discuss the problems associated with self reported data and same source bias. They state that researchers do not like these data, but cannot do without them. Furthermore they state that researchers share these problems with practitioners whom also frequently use these kinds of soft data.

Podsakoff & Organ (1986) suggest several statistical and post hoc remedies as well as some procedural methods to mitigate the problems that are related to self reported data and same source bias. In this study two of these statistical and post hoc approaches and one procedural method are applied, namely common method bias analysis, scale item trimming and scale reordering. The first two approaches will be discussed in the next chapter. The latter scale reordering is discussed hereafter. Salancik & Pfeffer (1977) note that reordering the items on the questionnaires in such a way that the independent variables precede the dependent variables could reduce the effects of the consistency motif.

### **3.4 Measurement**

As the literature review indicates the constructs in the conceptual framework are all important or key constructs for sourcing teams and their effectiveness. Furthermore all items used in this research stem from previous research and so all constructs have been validated previously.

The following constructs are applied in this research: empowerment, team processes (effort & communication), sourcing team effectiveness (team performance & personal success) and team type. In this study all variables are measured at the team-level with the exception of one dimension of sourcing team effectiveness, namely personal success. This dimension shows a strong resemblance with the QWL construct. Spreitzer et al. (1999) note that the QWL construct is an individual-level construct.

Team processes is a multifaceted higher order construct which in this research consists of two facets, namely effort and communication. As such these two facets are indicators of the work process in teams and together combine to the team processes construct. The conceptualization as a higher order (latent) construct is synonymous to Hackman's (1987) "process criteria of effectiveness" in which several critical indicators (or subconstructs) are combined in the specification of the team task process (Hoegl & Gemuenden, 2001).

In the following section all construct measures are described. In appendix A are enlisted all items and the reliability statistics for each measure. Furthermore all constructs are measured

on a five-point Likert scale (ranging from (1) ‘completely disagree’ to (5) ‘completely agree’).

*Empowerment* refers to the extent to which the sourcing team is allowed power and autonomy to exercise control over sourcing team decisions and actions; i.e., the extent to which a manager grants a sourcing team to run itself without interference (Lambe et al., 2009). In this research two items are adapted from Lambe et al. (2009).

*Team processes* captures the extent to which the sourcing team engages in self-management of team effectiveness (Lambe et al., 2009). The construct is divided into two sub-constructs, namely effort and communication. Effort (4 items) is adapted from Hoegl & Gemuenden (2001). Communication is measured by internal communication (1 item) and external communication (3 items) from Keller (2001).

*Sourcing Team effectiveness* is a multifaceted higher order construct that consists of two dimensions, namely team performance and personal success. Thereby Hoegl & Gemuenden (2001) define team performance as ‘the extent to which a team is able to meet established quality and cost and time objectives’ (p. 438). Effectiveness then refers to the degree in which the sourcing team meets expectations concerning the quality of the outcome and efficiency is concerned with the teams’ adherence to schedule and budget (Hoegl & Gemuenden, 2001). According to Hoelg & Gemuenden (2001) effectiveness is concerned with actual versus intended outcomes, whereas efficiency relates to actual versus intended inputs. The second dimension personal success contains two sub-dimensions, namely satisfaction and learning. Satisfaction addresses the extent to which team leaders and team members have the desire to participate in future teams (Hoegl & Gemuenden, 2001). It is a subjective measure that captures the wellbeing of team leaders and team members (Kuipers & Stoker, 2009). Learning refers to the extent to which team members’ knowledge and skills are raised as a result of team experiences (Hackman & Wageman, 2005). Finally the operationalization of team performance involves six items which are taken from Driedonks (2011). Satisfaction is measured by 3 items adapted from Hoegl & Gemuenden (2001). Two items (Denison et al., 1996) assess learning.

*Team type* is a dichotomous variable that is determined by the team having a mono or cross-functional composition. Thereby a team is considered cross-functional when three or more functional backgrounds are present within the sourcing team (Trent, 1996). The single item is adapted from Driedonks (2011).

## **4 Results**

### **4.1 Response**

Within a few weeks a total of 137 respondents had completed the survey. Of which two questionnaires are largely incomplete, one is missing two of the twenty-seven questions and seven respondents have missed just one. It was decided that almost complete questionnaires were not dropped from the study, as the missing responses are treated as missing values in the analysis (using SPSS statistics 19). Therefore this research comprises a total number of 135 questionnaires. The number of NEVI members is around 6,000 and so the effective response rate of the survey is about 2.25%. Although the relative response rate can be regarded as low, analyses are still possible, considering the absolute number of responses. Furthermore the respondents are not all NEVI members as other organizations have helped to obtain the survey data by introducing the research and providing the link to the web-based questionnaire. Therefore it is acknowledged that our sample cannot be considered random.

The final sample respondent, team and organization characteristics are as follows: team leader is 44.9% and 55.1% are team members, 30.7% of the teams have a mono-functional composition whereas 69.3% have a cross-functional composition, 71.4% of the teams are on project basis and 28.6% have a more permanent status. Finally 6.3% of the organizations in which the respondents are employed are small sized (< 50 employees), 19.9% are medium sized organizations ( 50 < employees < 250 ) and 73.8% are categorized as large organizations ( > 250 employees ). Furthermore additional analysis shows that 16.7% of the teams are labelled as parallel teams, 13.5% are referred to as work teams, 54.7% are categorized as project teams and 15.1% are management teams which according to figure 4 means these teams have a cross-functional composition and operate on a continuous basis.

### **4.2 Measure validation**

In order to test for unidimensionality the constructs are validated by means of explanatory factor analysis using principal components analysis with varimax rotation. All items that are selected for further analysis have factor loadings above the commonly recommended level of 0.5 on the a-priori dimension (see appendix A). One item that was reverse coded does not load on the a-priori dimension and is therefore removed. The factor solutions confirm our intended factor structure as the components clearly relate the items to their supposed constructs. Yet two sub-dimensions of team effectiveness, namely effectiveness and satisfaction, appear to load on the same factor. Although this suggests that effectiveness and satisfaction refer to the same latent factor. The researchers maintain that these factors are conceptually distinct and therefore effectiveness and satisfaction are kept separate in our analyses. Furthermore the analysis shows that team performance (6 items) is composed of two separate components that theoretically as well as statistically relate to our two sub-dimensions, namely effectiveness (4 items) and efficiency (2 items). Therefore the analysis established convergent validity as well as discriminant validity, because items that should be related are indeed strongly correlated and items that theoretically should not be related are not.

Furthermore a reliability analysis is performed and Cronbach's alpha has been evaluated to ensure internal consistency and reliability of the constructs (see appendix A). The coefficients of Cronbach's alpha are all higher than 0.7 which indicates a good internal consistency and reliability of the constructs. Additional correlation analysis shows convergent validity because

items that should be related are correlated. Furthermore discriminant validity is established as items that theoretically should not be related do not correlate.

When measuring a construct Hair et al. (2006) recommend the use of at least three items. Yet some of our constructs are measured with just two items. Nevertheless the items are very clear, reflect their factors well and show high face validity. Fields (2002) notes that the use of more items can also increase ambiguity.

The mean values, the standard deviation, and the correlations between the variables are presented in table 4.

Table 4 Correlation table

	Mean	SD	1	2	3	4	5	6
1. Empowerment	3.95	0.96						
2. Effort	3.52	0.83	0.30***					
3. Communication	3.27	0.71	0.12	0.24**				
4. Effectiveness	3.80	0.74	0.66***	0.47***	0.30***			
5. Efficiency	3.38	0.84	0.32***	0.47***	0.19*	0.50***		
6. Satisfaction	3.90	0.83	0.62***	0.39***	0.29***	0.78***	0.41***	
7. Learning	3.65	0.92	0.37***	0.36***	0.17	0.43***	0.24**	0.63***

Notes: N ranges between 131 and 135. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

### 4.3 Common method bias analysis

As all measures consist of self-reported data from team leaders and team members common method bias could be a concern in this research. A test that is often used in the literature for common method bias is Harman's one-factor test (Podsakoff et al., 2003). So in this research all variables have been loaded into an exploratory factor analysis to check if the unrotated principal components factor analysis shows a single factor or one general factor that accounts for the majority of covariance among the variables. The results show five factors with eigenvalues greater than one. These five factors accounted for 67.53% of total variance in which the first factor accounts for 26.06% of total variance. Therefore these results suggest that common method bias may not be a problem in the data. Finally common method variance is not likely to occur for moderating effects (Podsakoff et al., 2003).

### 4.4 Tests of hypotheses

Hypotheses 1, 2 and 3 are tested by means of multiple linear regression analyses. The results of the analyses are presented in the next subparagraph. In the following subparagraph the mediating effects of hypothesis 4 are tested using the three-step method which is recommended by Baron & Kenny (1986). In the third subparagraph hypotheses 5 and 6 are then examined by means of moderation analyses.

#### 4.4.1 Multiple linear regression analyses

In this research multiple linear regression analyses is used to test the hypothesized effects of team processes (effort and communication) and emergent states (empowerment) on sourcing team effectiveness. Thereby the latter consists of two dimensions, namely team performance and personal success. Additionally the aforementioned two dimensions of sourcing team effectiveness are both comprised of two sub-dimensions, namely effectiveness & efficiency

(team performance) and satisfaction & learning (personal success). The results of the regression analyses are separately shown for the four sub-dimensions of sourcing team effectiveness in the tables 5, 6, 7 and 8.

## Effectiveness

Table 5 Regression results for effectiveness

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Empowerment	0.43	8.95	0.000
Effort	0.24	4.18	0.000
Communication	0.18	2.75	0.007
Adjusted R <sup>2</sup> 0.53			
F value 51.225***			

Notes: N = 134. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in Table 5 indicate that the three variables in this study (empowerment, effort and communication) explain 53% of the variance of effectiveness. Furthermore the unstandardized coefficients whom indicate the direction and magnitude of the relationship between the three variables and effectiveness are all significant at the 5% level meaning that our conclusions with regard to the relationship between the three variables and effectiveness can be considered as reliable.

## Efficiency

Table 6 Regression results for efficiency

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Empowerment	0.16	2.33	0.022
Effort	0.40	4.88	0.000
Communication	0.09	0.99	0.326
Adjusted R <sup>2</sup> 0.25			
F value 15.246***			

Notes: N = 132. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

Table 6 shows that the three variables in this study (empowerment, effort and communication) explain 25% of the variance of efficiency. Whereby the unstandardized coefficients of empowerment and effort are significant at the 5% level.

## Satisfaction

Table 7 Regression results for satisfaction

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Empowerment	0.47	8.07	0.000
Effort	0.19	2.69	0.008
Communication	0.22	2.76	0.007

Adjusted R <sup>2</sup> 0.45			
F value 37.409***			

Notes: N = 133. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in Table 7 suggest that the variables explain 45% of the variance of satisfaction. All three unstandardized coefficients hold at the 5% level

## Learning

Table 8 Regression results for learning

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Empowerment	0.27	3.47	0.001
Effort	0.28	3.04	0.003
Communication	0.09	0.86	0.392
Adjusted R <sup>2</sup> 0.19			
F value 11.289***			

Notes: N = 132. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in Table 8 show that the three variables explain 19% of the variance of learning. Yet communication is not significant at the 5% level. Hereunder are discussed the implications these regression results have for the first three hypotheses of this study.

Hypothesis 1 suggests that effort has a positive impact on sourcing team effectiveness. The regression results show that effort indeed has a significant, positive effect on all four sub-dimensions of sourcing team effectiveness. Therefore hypothesis 1 is completely supported.

It is hypothesized that communication has a positive impact on sourcing team effectiveness. The regression results indicate that communication has a significant, positive effect on two sub-dimensions of sourcing team effectiveness, namely effectiveness and satisfaction. Therefore hypothesis 2 is supported for the two aforementioned sub-dimensions of sourcing team effectiveness. Yet the regression results do not confirm that communication has a significant, positive effect on the other two sub-dimensions of sourcing team effectiveness, namely efficiency and learning. Therefore hypothesis 2 is not supported for those two sub-dimensions of sourcing team effectiveness.

Hypothesis 3 postulates that empowerment has a positive impact on sourcing team effectiveness. The regression results show that empowerment indeed has a significant, positive effect on all four sub-dimensions of sourcing team effectiveness and so hypothesis 3 is also fully supported.

### 4.4.2 Mediation tests

In this subparagraph the extent to which the endogenous variable (i.e., effort) mediates the influence of the exogenous variable (i.e., empowerment) on the criterion variable (i.e., sourcing team effectiveness) is tested. To test for these mediating effects the three-step method recommended by Baron & Kenny (1986) is appropriate and will therefore be applied. The mediation test aims to gain insight into the role of empowerment as either a predictor or a mediating variable. The full mediation would then indicate that empowerment has an impact

on sourcing team effectiveness to the extent that effort is present. If full mediation occurred, the role of empowerment as a predictor variable would be established. Whereas partial mediation would suggest that empowerment is also a mediating variable on itself. Below in figure 7 the three steps or paths of the mediation test are shown.

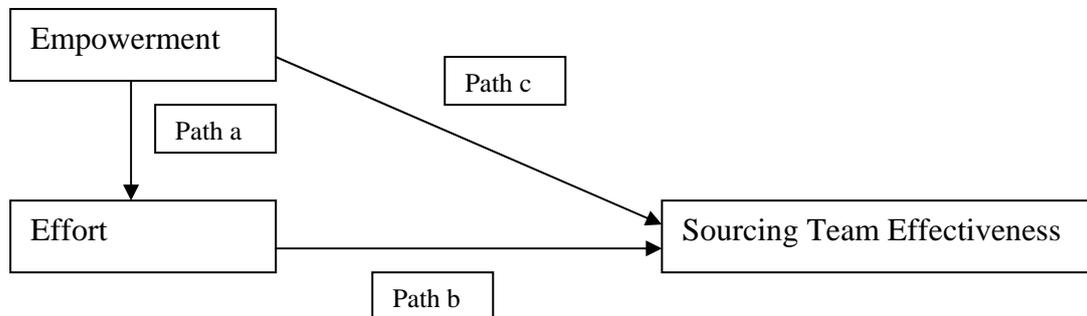


Figure 7 Mediation test

Two separate regression models are applied for the mediation test. The first model involves step 1 in which the exogenous variable is directly related to the criterion variable (path c). If path c shows a positive, significant relation then the second model is created in which the steps 2 and 3 will be addressed. In step 2 the exogenous variable will be linked to the endogenous mediator variable and in step 3 both the exogenous and endogenous mediator variable will be directly related to the criterion variable.

#### Step 1

In step 1 the relation between the exogenous variable (i.e., empowerment) and the criterion variable (i.e., sourcing team effectiveness) is analyzed. The results of the regression analyses show that empowerment has a positive, significant impact on all four dimensions of sourcing team effectiveness, namely effectiveness (Beta = 0.50,  $p < 0.001$ ), efficiency (Beta = 0.28,  $p < 0.001$ ), satisfaction (Beta = 0.54,  $p < 0.001$ ) and learning (Beta = 0.35,  $p < 0.001$ ).

#### Step 2

A second model is created in which we link the exogenous variable (i.e., empowerment) to the endogenous mediator variable (i.e., effort). The results of the regression analyses indicate that empowerment has a positive, significant impact on effort (Beta = 0.26,  $p < 0.01$ ).

#### Step 3

In step 3 both empowerment and effort will be directly related to sourcing team effectiveness whereby paths a and b are controlled. The results for the four sub-dimensions of sourcing team effectiveness are shown below in the tables 9, 10, 11 and 12.

### Effectiveness

Table 9 Regression results for effectiveness

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Effort	0.27	4.78	0.000
Empowerment	0.43	8.90	0.000
Adjusted R <sup>2</sup>	0.51		

F value	69.584***			
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Notes: N = 134. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in table 9 suggest that 51% of the variance of the sub-dimension effectiveness is explained by the mediation of effort and empowerment. Both mediators remain significant at the 0.001 level.

### Efficiency

Table 10 Regression results for efficiency

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Effort	0.42	5.20	0.000
Empowerment	0.17	2.39	0.018
Adjusted R <sup>2</sup>	0.25		
F value	22.388***		

Notes: N = 132. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

In table 10 effort and empowerment significantly explain 25% of the variance in efficiency.

### Satisfaction

Table 11 Regression results for satisfaction

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Effort	0.23	3.26	0.001
Empowerment	0.48	8.05	0.000
Adjusted R <sup>2</sup>	0.42		
F value	49.791***		

Notes: N = 133. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

Again in table 11 both mediators remain significant and together explain 42% of the variance of satisfaction.

### Learning

Table 12 Regression results for learning

Independent variable	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)
Effort	0.30	3.31	0.001
Empowerment	0.28	3.53	0.001
Adjusted R <sup>2</sup>	0.19		
F value	16.599***		

Notes: N = 132. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

Regarding the last sub-dimension of sourcing team effectiveness learning the two mediators in the analysis significantly explain 19% of the variance. The mediation tests in all four sub-

dimensions of sourcing team effectiveness show that in the first and second model empowerment is both significant and nonzero.

Hypothesis 4 postulates that effort mediates between empowerment and the four sub-dimensions of sourcing team effectiveness. The results suggest that empowerment is partially mediated by effort, because the relationship between empowerment and all four sub-dimensions of sourcing team effectiveness remain significant and nonzero in the second model. Therefore hypothesis 4 is supported for all four sub-dimensions of sourcing team effectiveness. Furthermore these results indicate that empowerment as expected is indeed a mediating variable itself.

#### 4.4.3 Moderation analyses

In this study the moderating effects of team type on the relationship between communication (hypothesis 5), empowerment (hypothesis 6) and sourcing team effectiveness are examined. The moderator team type divides the survey data into two groups, namely mono-functional teams and cross-functional teams. The results for the four sub-dimensions of sourcing team effectiveness are presented below in the tables 13, 14, 15 and 16. Although the results for communication and empowerment are reported in the same tables it is acknowledged here that the analyses of the moderating effects have been executed separately.

#### Effectiveness

Table 13 Regression results for effectiveness

Independent variable	Functionality	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)	Adjusted R <sup>2</sup>	F value
Communication	Mono	0.08	0.45	0.652	-0.02	0.206
Communication	Cross	0.27	2.61	0.011	0.06	6.805*
Empowerment	Mono	0.51	5.19	0.000	0.41	26.903***
Empowerment	Cross	0.47	7.96	0.000	0.42	63.306***

Notes: N mono = 38; N cross = 87. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in table 13 show that 6% of the variance of effectiveness is explained by communication in cross-functional teams. Only the unstandardized coefficient of communication in cross-functional teams is significant at the 5% level. Furthermore the results indicate that 41% of the variance of effectiveness in mono-functional teams against 42% in cross-functional teams is explained by empowerment. In both teams the unstandardized coefficients of empowerment are significant at the 5% level.

#### Efficiency

Table 14 Regression results for efficiency

Independent variable	Functionality	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)	Adjusted R <sup>2</sup>	F value
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				tailed)		
Communication	Mono	0.21	1.06	0.297	0.00	1.118
Communication	Cross	0.08	0.59	0.557	-0.01	0.347
Empowerment	Mono	0.53	4.35	0.000	0.32	18.932***
Empowerment	Cross	0.12	1.26	0.212	0.01	1.579

Notes: N mono = 38; N cross = 85. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

Table 14 shows that communication in both teams is not significant at the 5% level. Empowerment significantly explains 32% of the variance of efficiency in mono-functional teams, but it does not significantly explain efficiency in cross-functional teams.

## Satisfaction

Table 15 Regression results for satisfaction

Independent variable	Functionality	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)	Adjusted R <sup>2</sup>	F value
Communication	Mono	0.15	0.75	0.458	-0.01	0.563
Communication	Cross	0.33	2.65	0.010	0.07	7.032*
Empowerment	Mono	0.59	5.29	0.000	0.42	28.023***
Empowerment	Cross	0.48	6.23	0.000	0.31	38.799***

Notes: N mono = 38; N cross = 86. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The results in table 15 indicate that 7% of the variance of satisfaction is significantly explained by communication in cross-functional teams, but satisfaction is not explained by communication in mono-functional teams. In both teams empowerment explains satisfaction significantly (42% in mono-functional teams; 31% in cross-functional teams).

## Learning

Table 16 Regression results for learning

Independent variable	Functionality	Unstandardized coefficients	t-value	p-value (Sig. 2 tailed)	Adjusted R <sup>2</sup>	F value
Communication	Mono	0.04	0.23	0.819	-0.03	0.053
Communication	Cross	0.17	1.19	0.237	0.01	1.417
Empowerment	Mono	0.42	3.44	0.001	0.22	11.822***
Empowerment	Cross	0.25	2.41	0.018	0.05	5.814*

Notes: N mono = 38; N cross = 86. \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001.

The regression results in Table 16 show that learning in both teams is not explained by communication. However empowerment does significantly explain 22% of the variance of

learning in mono-functional teams and 5% in cross-functional teams. Hereunder the last two hypotheses of this study will be discussed.

Hypothesis 5 postulates that communication has a stronger impact on sourcing team effectiveness in cross-functional teams compared to mono-functional teams. The regression results show that communication in mono functional teams does not have a significant effect on any sub-dimension of sourcing team effectiveness. Whereas communication does have a significant effect on effectiveness and satisfaction in cross-functional teams. Therefore hypothesis 5 is partially supported.

Hypothesis 6 suggests that empowerment in cross-functional teams has a stronger impact on sourcing team effectiveness than empowerment in mono-functional teams. The regression results indicate that empowerment in both teams has a significant, positive effect on all sub-dimensions of sourcing team effectiveness with the exception of efficiency in the case of cross-functional teams. However empowerment in mono-functional teams in comparison to cross-functional teams explains substantially more variance in three sub-dimensions of sourcing team effectiveness. The results clearly indicate that empowerment albeit being a strong indicator for sourcing team effectiveness in general does not have a stronger effect on sourcing team effectiveness in cross-functional than mono-functional teams. Therefore hypothesis 6 is not supported for any sub-dimension of sourcing team effectiveness.

Due to the unexpected outcome regarding hypothesis 6 the researchers have additionally analyzed the means and standard deviations (SD) of empowerment with respect to both teams as well as possible differences between team leaders and team members within the two team types. The results of these additional analyses indicate that empowerment within cross-functional teams scores slightly higher compared to mono-functional teams. Even more interesting is that the team leaders experience higher levels of empowerment than team members.

## 5 Conclusions, discussion and recommendations

### 5.1 Conclusions

The importance of teams for organizations is acknowledged by both academics and practitioners. Yet there has been little empirical research concerning sourcing teams. This study aims to provide new insights into sourcing teams and their effectiveness by addressing specific gaps in team research in general and sourcing team research in particular. The problem statement of this study is as follows:

*What are the relationships between influential variables in the MO (Mediator-Output) phase of the IMOI model in a sourcing team context?*

This study identified three explanatory variables (empowerment, effort, and communication) and a mediating relationship between empowerment – effort and sourcing team effectiveness (empowerment stimulates effort which in its turn increases sourcing team effectiveness. In addition, this study examined the moderator effect of team type (cross-functional versus mono-functional teams) on the relationship between empowerment and sourcing team effectiveness as well as between communication and sourcing team effectiveness. This study was aimed at investigating the various direct, indirect and mediating relationships that could explain the (various sub-dimensions of) sourcing team effectiveness. In table 17 we summarize the results of the testing of hypotheses from the previous chapter.

Table 17 Overview of the results of the testing of hypotheses

H	Direct effects	Sourcing team effectiveness			
		Team performance		Personal success	
		Effectiveness	Efficiency	Satisfaction	Learning
1	Effort	X	X	X	X
2	Communication	X		X	
3	Empowerment	X	X	X	X
	<b>Mediating effects</b>				
4	Empowerment -> effort	X	X	X	X
	<b>Team type as moderator for</b>				
5	Communication	X		X	
6	Empowerment				

Note: Xs indicate a significant, positive effect on the respective sub-dimension of sourcing team effectiveness

### 5.2 Discussion

Due to the nature of a survey the internal validity tends to be the most cumbersome. although we have only used items that were found in previous studies. The analyses showed convergent as well as discriminant validity for all variables. The external validity could be questioned, considering the relatively low effective response rate (about 2.25%) and the sample frame (Dutch members of a professional purchasing association). It is not clear if the survey can be seen as a reasonable representation of all sourcing team members in the Netherlands. However, the sample does seem to include a variety of respondents, considering their team type, their team position (leader or member), and the company size.

Morgeson et al. (2010) note that research should examine the widest set of appropriate outcome criteria. Our literature review has identified four sub-dimensions of sourcing team effectiveness that are commonly used in team research. In chapter 3 we have operationalized and provided definitions for all four sub-dimensions. Furthermore our analysis in chapter 4 showed that these sub-dimensions are conceptually as well as statistically distinct. We will now discuss the implications of the findings of this study for our four sub-dimensions.

### **Effectiveness**

In accordance with the literature and previous team as well as sourcing team research our results indicate a significant impact of effort, communication, and empowerment on effectiveness. Furthermore the results show that empowerment has both a direct and an indirect effect, which confirms the mediating relationship between empowerment – effort – effectiveness. This means that empowerment has a positive impact on effort which in its turn has a positive impact on effectiveness. Our literature review shows support for the moderating effect of team type. Nevertheless we did not come across empirical research that confirmed the literature. Yet our study confirms the moderator effect of team type on the communication - effectiveness relation. Previous empirical research showed conflicting results for the moderating effect of team type on the relationship between empowerment and effectiveness. However our study showed no moderating effect of team type on this relationship.

### **Efficiency**

Both empowerment and effort have a significant impact on efficiency. Empowerment influences efficiency both directly and indirectly and so establishes itself as a mediating variable. However no moderating effects are found for both communication and empowerment. Furthermore the results show that empowerment does not significantly explain efficiency in cross-functional teams. Therefore it appears that cross-functional teams are less focused on efficiency. A probable explanation for this might be found in the composition of cross-functional teams in this study, namely almost three quarter of these teams are project based. It is assumable that such temporarily teams are less concerned with efficiency due to their short life span. In addition Uhl-Bien & Graen (1998) note that mono-functional teams focus on efficiency, whereas cross-functional teams will generate innovation.

### **Satisfaction**

Similar to the sub-dimension effectiveness all three explanatory variables have a significant impact on satisfaction. Again the role of empowerment as a mediating variable is acknowledged as well as the moderating effect of team type in the case of communication.

The results show that satisfaction and effectiveness are influenced most by the three explanatory variables. The sub-dimensions satisfaction and effectiveness seem to be highly correlated, considering Pearson's correlation coefficient (see table 4). However, these sub-dimensions are very distinct from a theoretical point of view. Satisfaction and effectiveness belong to two different dimensions of sourcing team effectiveness, namely personal success and team performance. These two dimensions which are individual and team-level constructs are therefore among others very distinct. It can be argued that these dimensions that are highly correlated also reinforce each other and operate mutually. This study is in line with previous empirical research of Bunderson & Sutcliffe (2003) which showed that both too much and too little emphasis on learning hampers team performance. Therefore we suggest that personal success (satisfaction & learning) and team performance (effectiveness & efficiency) need to be balanced in order to achieve the optimum level of sourcing team effectiveness.

## **Learning**

Likewise, empowerment and effort appear to have a strong effect on learning. Empowerment is also a mediating variable, comparable with the other three sub-dimensions. Both empowerment and communication are not moderated by team type. In fact even cross-functional teams show no significant effect on the communication – learning relation. This is a remarkable finding as Decuyper et al. (2010) in their integrative model of team learning propose that the communicative behaviours ‘sharing’, ‘co-construction’ and ‘constructive conflict’ are the three basic process variables to facilitate effective team learning.

Surprisingly no moderating effects of team type were found for the relationship between empowerment and any of the four sub-dimensions of sourcing team effectiveness. Although the literature does point in the direction of moderating effects with regard to the empowerment – team effectiveness relation. Empirical research provided mixed results. Uhl-Bien & Graen (1998) state that self-management is subject to individual differences.(e.g. high vs low Need Achievement (NAch)). An additional analysis for empowerment indeed confirmed the presence of differences between team leaders and team members. Although we acknowledge that a person’s NAch more closely resembles a trait, whereas empowerment is in the literature considered an emergent state that varies over time. Yet the example portrays well that empowerment is felt and thought of differently by team leaders and team members.

In summary, the results indicate that effort, communication, and empowerment have a significant, positive impact on sourcing team effectiveness. The mediation tests acknowledge that effort partially mediates the relationship between empowerment and all four sub-dimensions of sourcing team effectiveness. In other words empowerment has both a direct effect and an indirect effect via effort on sourcing team effectiveness. Mixed results were found for the expected moderator effects of team type. Apparently, team type does moderate the relationship between communication and effectiveness (as a sub-dimension of team performance) and also the relationship between communication and satisfaction (as a sub-dimension of personal success). No other significant moderator effects were found. Yet this study did show that empowerment has a significant, positive impact on all four sub-dimensions of sourcing team effectiveness in both mono and cross-functional teams (with the exception of the sub-dimension efficiency in the case of cross-functional teams).

In the introduction the relevance of this study is elaborately discussed. Now in this final chapter of this study we are able to look back and address these gaps in sourcing team research. First, the results of this study clearly show the strong impact of our three explanatory variables (empowerment, effort and communication) on sourcing team effectiveness. Second, the role of empowerment as a mediating variable as opposed to an input variable in Driedonks (2010; 2011) sourcing team research has been confirmed. This research is conducted within the MO phase of Ilgen et al’s (2005) recently proposed IMO model which differentiates between team processes and emergent states. These two are according to Ilgen et al. (2005) interrelated. Our mediation test indeed confirms their interrelatedness by the mediating effects of effort on the relationship between empowerment and all four sub-dimensions of sourcing team effectiveness. Furthermore the in team research overlooked effect of the moderator team type on the relationship between team processes and sourcing team effectiveness is acknowledged in this study. This is noteworthy because theory describes and expects this relation. Yet its presence has not been confirmed in previous empirical research for as far as researchers are aware of. Finally this study includes a dimension of sourcing team effectiveness that has been left unaddressed in previous sourcing team research, namely personal success. We believe that this dimension and its relation with

its counterpart team performance is vitally important and should not be overlooked in team research. In the literature the relation is described as a balancing act (Hackman & Wageman, 2005). Furthermore the individual and team-level constructs operate similar to the central feature in the management control literature, namely goal congruence. Goal congruence refers to the balancing of individual and higher level (e.g. team or organizational) goals. Driedonks (2011) notes that goal incongruence in cross-functional teams damages a team's long term viability and performance. In our introduction we already acknowledged the importance of the trade-off between personal success and team performance in team research. We have concluded that these dimensions personal success and team performance are indeed highly correlated and should be balanced to realize the optimum level of sourcing team effectiveness.

### **5.3 Managerial implications**

First, we recommend practitioners to take advantage of the insight that empowerment and effort have a strong, positive impact on our four sub-dimensions of sourcing team effectiveness and are critical for team success. Therefore practitioners should ascertain that sourcing teams are adequately empowered. Furthermore team leaders and team members should possess the right teamwork and self-leadership KSAOs. Empowerment and effort are in the literature addressed as emergent states and team processes which are interrelated in Ilgen et al's recently proposed IMO model. This study shows that empowerment indeed is a mediating variable and has both a direct effect as well as an indirect effect via effort on sourcing team effectiveness. The literature shows that empowerment is a motivational construct which is closely related to effort. In their theory on team coaching Hackman & Wageman (2005) state that effort is particularly important at the beginnings of a team. Yet due to the cyclical nature of teamwork correctly represented in the IMO model we emphasize that empowerment and effort will remain vitally important for a team's functioning and its effectiveness throughout the team's lifespan.

Second, we advise practitioners to take notice of the specific function of communication in relation to teams and their effectiveness. Communication is vitally important for teamwork, team effectiveness and team success. The importance of communication heightens as a team's interdependence increases. This study investigated the impact of communication in mono-functional and cross-functional teams. The theory describes that the first scores lower on interdependence than the latter. This study in accordance with the literature shows that communication only has an impact on sourcing team effectiveness in cross-functional teams.

Third, the researchers point out to practitioners an interesting finding of this study that satisfaction and effectiveness are highly correlated. These two sub-dimensions belong to two dimensions of sourcing team effectiveness, namely personal success and team performance. In accordance with the goal congruence concept in the management control literature managers, team leaders and team members should balance these two individual and team-level constructs to obtain the optimum level of sourcing team effectiveness. Such a balancing act would require constant attention from all people involved with the team.

Finally the cyclical nature within the IMO model learns us that sourcing team effectiveness is not just an outcome, but also an input and process variable in following episodes. In other words teams that are satisfied, have learned and achieved their goals efficiently and effectively thereby raise the prospects for achieving future individual and team goals. Of course the opposite then also holds, namely not achieving individual and team goals will also lower the chance on future individual and team success.

## 5.4 Limitations and recommendations for future research

As with any research this study has a number of limitations. These limitations will then provide the basis for recommendations for future research. First the survey is held under Dutch sourcing team leaders and team members a Northern European country that is characterized as a low power distance culture. Eylon & Au (1999) showed that empowerment is advantageous in such a culture, but it is not in a high power distance culture. Therefore our conclusion that empowerment is a key success factor for sourcing team effectiveness possibly does not hold in every cultural setting. We recommend future research to replicate and extend our robust conceptual model in other countries that are characterized by low power distance cultures (e.g. Northern Europe and USA). Additionally it seems interesting and fruitful to apply our robust conceptual model in other complex team settings like new product development teams and top management teams.

Empirical research investigating antecedents of team effectiveness and its sub-dimensions usually involves team leaders and team members self reported data (e.g. Gladstein, 1984). Yet such data can be infected by various method biases (e.g. Podsakoff et al., 2003). This study also relies on self reported data. Although a number of Podsakoff & Organ's (1986) recommendations like common method bias analysis, scale item trimming and scale reordering have been applied in this study to address the issue of common method bias. This study does not follow their optimal solution, namely multiple measures of the important conceptual constructs obtained from multiple sources whereby multiple methods are used. Podsakoff & Organ (1986) also recommended the use of structural equation modelling to assess the relationships between the variables with and without common method variance. We acknowledge that not using structural equation modelling as suggested by Podsakoff & Organ (1986) is a limitation of this study and recommend future research to apply structural equation modelling in similar research designs to increase the knowledge of the effects of common method variance.

Another limitation of this study relates to the collection of the survey data. As four organizations were involved in promoting the survey, this study applies a convenience sample. This kind of sample cannot be considered a random sample.

Due to the nature of a cross-sectional survey this research only provides a snapshot of mediator-outcome relationships. The researchers cannot assure that empowerment is caused by sourcing team effectiveness rather than vice versa. Spreitzer (1995) notes that effectiveness and empowerment could be related reciprocally. Therefore we recommend future research to investigate these possible reciprocal effects by applying longitudinal studies.

Finally, Mathieu et al. (2008) address the complexity of nowadays teams and call for a new paradigm. In this research we investigated influential variables within the MO phase of the recently proposed IMO model. Our conceptual model appears to be quite robust. Yet complex team phenomena are difficult to reveal in mathematical symbols and equations. As human language can better grasp aspects of these complex team phenomena the researchers recommend more qualitative research on teams within the recently proposed IMO framework and on our robust conceptual model that is based on this IMO model.

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## Appendix A

### Item scales

Measure (on a five-point Likert scale)	Factor loadings	Cronbach's alpha	Mean	Standard deviation
<b>Empowerment</b>		0.84	3.95	0.96
- The management allows the team to make important decisions about how it should operate.	0.75			
- The management allows the team a high degree of initiative.	0.77			
Team processes:				
<b>Effort</b>		0.79	3.52	0.83
- Every team member fully pushes the team's work.	0.75			
- Every team member makes the team's work their highest priority.	0.84			
- Our team puts much effort into the team's work.	0.72			
- There are conflicts regarding the effort that team members put into the team's work. (R)	-			
<b>Communication</b>		0.71	3.27	0.71
- The amount of task-related communication within our team is high.	0.56			
- The amount of task-related communication outside our team but within our purchasing organization is high.	0.73			
- The amount of task-related communication outside the purchasing organization but within the company is high.	0.80			
- The amount of task-related communication outside the company is high.	0.73			
Sourcing team effectiveness:				
Team performance:				
<b>Effectiveness</b>		0.87	3.80	0.74
- The team has produced a large quantity or high amount of work.	0.65			
- The team has produced high quality or high accuracy of work.	0.76			
- The team's reputation for work excellence is high.	0.76			
- The team's ability to meet management's performance expectations is good.	0.84			
<b>Efficiency</b>		0.79	3.38	0.84
- The efficiency of the team's operations is high.	0.50			
- The team's ability to meet timing and task schedule targets is high.	0.62			
Personal success:				
<b>Satisfaction</b>		0.87	3.90	0.83
- The team member can draw a positive balance for themselves overall.	0.77			
- The team member has gained from the collaborative work.	0.61			
- The team member would like to do this type of collaborative work again.	0.62			
<b>Learning</b>		0.89	3.65	0.92
- I have developed many new skills from working with other team members.	0.85			
- I have learned things working in this team that I will use in other teams.	0.79			

Notes: (R) indicates item was reverse coded. – indicates deleted item.