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# Facilitating Group Decision-Making: Facilitator's Subjective Theories on Group Coordination

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**Key words**: communication; explicit coordination; decision-making; facilitation; group; subjective theory

**Abstract**: A key feature of group facilitation is motivating and coordinating people to perform their joint work. This paper focuses on group coordination which is a prerequisite to group effectiveness, especially in complex tasks. Decision-making in groups is a complex task that consequently needs to be coordinated by explicit rather than implicit coordination mechanisms. Based on the embedded definition that explicit coordination does not just happen but is purposely executed by individuals, we argue that individual coordination intentions and mechanisms should be taken into account.

Thus far, the subjective perspective of coordination has been neglected in coordination theory, which is understandable given the difficulties in defining and measuring subjective aspects of group facilitation. We therefore conducted focused interviews with eight experts who either worked as senior managers or as experienced group facilitators and analysed their approaches to group coordination using methods of content analysis. Results show that these experts possess sophisticated mental representations of their coordination behaviour. These subjective coordination theories can be organised in terms of coordination schemes in which coordination-releasing situations are facilitated by special coordination mechanisms that, in turn, lead to the perception of specific consequences. We discuss the importance of these subjective coordination theories for effectively facilitating group decision-making and minimising process losses.

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## 1. Introduction

Coordinating and motivating people to perform joint work are key processes which determine group effectiveness (STEINER, 1972) and are therefore a focus of group facilitation. Groups perform a variety of tasks in everyday work life and are inevitably required to make decisions. However, the process of joint decision-making is not a straightforward endeavour and group decisions are often far from being ideal (KOLBE, 2007; STASSER & TITUS, 2006). [1]

The focus of this paper is on the coordination requirements of small group decision-making and the inherent complexities. We will underpin our argumentation by presenting an interview study investigating subjective coordination theories of eight experienced group facilitators. This study is the exploratory part of a research project investigating the concept of explicitness in group coordination and its importance in decision-making. Thus, the objective of the interviews is to discover individual coordination intentions and behavioural mechanisms within a qualitative research paradigm. The resulting coordination mechanisms will be analysed for their effectiveness by means of observation and experimental testing in subsequent studies. [2]

We will first describe theories in the literature of how group decision-making should ideally be organised in order to obtain high quality group decisions by presenting a normative model (Section 2). Secondly, we will summarise empirical results demonstrating that decisions made by groups often do not fit the normative model. Based on these results, we will then discuss possible constraints of the decision-making process and highlight aspects of group coordination that can help minimise these constraints (Section 3). Group coordination as a means to compensate for group process losses is the central concept of this contribution, specifically how the effectiveness of subjective aspects influencing a facilitator's explicit coordination compensate for group process losses. In order to clarify the concept of coordination and how it is brought to use by experienced group facilitators, we examined the subjective coordination theories of eight experts (Sections 4 through 6). [3]

The existing theoretical approaches and their related empirical findings are used as sensitising concepts in terms of GLASER and STRAUSS (2005). These

sensitising concepts are used at two points in our study: in the development of the interview guideline (Section 5 and Appendix) and in the interpretation of the results (Section 7). [4]

## 2. Group Decision-Making

### 2.1 A general model of group decision-making

Decision-making groups appear in a broad range of industrial, organisational, and medical areas, aiming to synergistically combine individual expertise in order to optimise decisions (e.g. in expert boards or commissions) and to avoid mistakes (e.g. in medical teams). Thus, it is of pivotal importance how individual group members integrate their knowledge, opinions, and preferences into a common group decision. This question was addressed by the functional theory of group decision-making effectiveness (GOURAN & HIROKAWA, 1996; HIROKAWA, 1983, 1985, 1990) which conceptualises the optimal group decision-making process. This theory suggests that during the decision process, the group should fulfil the following critical functions, which are essential for feasible decision quality: the group should develop a thorough and correct understanding of the problem; the group must recognise the requirements that the decision must satisfy in order to be judged acceptable; the group should develop realistic and eligible decision alternatives and evaluate their possible positive and negative consequences; and lastly, the group should choose the alternative with the best trade-off of advantages and disadvantages. GOURAN and HIROKAWA (1996) considered possible social constraints for effective group decision-making and expanded upon their functional theory. They emphasised that group members should not only pay attention to performance-related criteria (e.g. problem definition), but also to social and egocentric aspects (e.g. realise organisational constraints, develop basic rules of interaction, reach personal goals) during the decision process. Meta-analytic results showed that especially problem analysis and the evaluation of negative consequences are crucial criteria in predicting group decision quality (ORLITZKY & HIROKAWA, 2001). Another result relating to group facilitation implies that planning and communicating—explicitly regarding the group's procedure as well as steering the group process—contribute positively to the quality of the outcome (HACKMAN, WAGEMAN, RUDDY & RAY, 2000; SUNWOLF & SEIBOLD, 1999). It also appears that functional theory can serve as a tool for group decision-making process facilitation, which could be taken into account particularly by leaders and facilitators (WILSON, 2005). What makes this theory so poignant is that it emphasises the complexity of group decision processes: each team member's opinion and knowledge should be integrated into the group's final decision. Considering these theoretical aspects, coordinating and integrating individual contributions is clearly a crucial factor for effective group decision-making. [5]

### 2.2 Empirical findings on group decision-making

Not surprisingly, deviations from the aforementioned normative model of group decision-making were found. The suboptimal decision performance of groups is frequently found in social and organisational psychology research and is a main research area where processes of small group decision-making are investigated (e.g. LARSON, CHRISTENSEN, FRANZ & ABBOTT, 1998; SCHULZ-HARDT, BRODBECK, MOJZISCH, KERSCHREITER & FREY, 2006; STASSER & TITUS, 1985, 2006). Reasons for poor group decision quality (end result of process loss) have been shown to be mainly due to an inadequate exchange of information relevant to the decision (LARSON et al., 1998; STASSER & TITUS, 1985). Also, groups tend to not be ideally skilled in thoroughly evaluating possible negative consequences of ego-based or predetermined decision preferences (KAUFFELD, 2007). These findings are in line with STEINER's (1972) notion postulating that the actual group productivity is a function of both the potential group productivity and so-called process losses occurring during the group interaction. Thus, the question arises as to how groups can be effectively facilitated during their decision process in order to minimise process losses and to optimise decision quality. [6]

We argue that it is the complexity of group decision-making based on the interdependency of the group's members, tasks, and resources that has been woefully underestimated thus far. The importance of taking task characteristics and their implications for coordination requirements into account has been stated earlier (e.g. ANNETT, 2004; BOOS & SASSENBERG, 2001; HIROKAWA, 1990; TSCHAN, 2004; TSCHAN & CRANACH, 1996) but task analysis has not been used systematically in empirical research on group decision-making. Thus, systematic analysis of the differential impact of coordination mechanisms during group decision-making on decision performance is still in its infancy (KOLBE, 2007). In the following section we consider task analysis in complex group decision-making. [7]

## 3. Coordination of Group Decision-Making

Given the fact that process losses during group interaction are particularly due to ineffective coordination (e.g. lack of information storage) (STEINER, 1972; STROEBE & FREY, 1982), questions arise as to *what* exactly has to be coordinated during group decision-making and *how* facilitators can coordinate the group decision process in order to minimise process losses and optimise the quality of decisions. Coordination requirements during group decision-making are discussed within the next paragraph. [8]

### 3.1 Coordination requirements in group decision-making

Group decisions are conceptual and can entail rather conflictive tasks (McGRATH, 1984). Their main characteristics are an opaque structure and the lack of a solution that can often only be clearly perceived as the correct one after the decision has been implemented. HIROKAWA (1990) distinguished three main task features: structure (clarity of goals and ways of achieving them), information

requirements (extent to which group members possess relevant information and the amount and complexity of information that must be applied to complete the task), and evaluation demand (solution multiplicity, clarity of criteria, objective verifiability). Taking these task characteristics into account, it becomes clear why group decision-making has to be coordinated: *Firstly,* group decision-making is complex because goals and means of goal achievement are often unclear, making their establishment an important part of the decision-making task itself. Reconciliation of individual goals to a group goal and matching of individual task representations to a shared mental model of the task must be achieved as a basis for joint work. *Secondly,* the information requirements are very high in most cases as initial information is typically unequally distributed and a final decision is only possible via sharing and integrating information. Because of the inherent clarification, reconciliation, and information integration qualities of group decision making, this process should be coordinated (ARROW, McGRATH & BERDAHL, 2000) as otherwise relevant information is either not even mentioned (STASSER & TITUS, 1985) or gets lost during discussion because of not being repeated, summarised, or otherwise stored (KOLBE, 2007). Given that most decision-making teams consist of different experts and therefore of different views of problems or standards, simply sharing information is not sufficient. In addition, the meaning of the shared information often needs to be reconciled. *Thirdly,* the evaluation demands are very high because basically, many decisions are possible whose correctness cannot be determined objectively. Different individual opinions, preferences, and evaluation criteria need to be discussed (BOOS & SASSENBERG, 2001) and the initial ambiguity of information needs to be clarified (POOLE & HIROKAWA, 1996). Due to this task complexity, the requirements for facilitation during group decision-making are high, not only because of the content complexities of information but also because of the social, affiliative, and hierarchical sources of information (GOURAN & HIROKAWA, 1996). [9]

Regarding the question of *how* group decision-making can be coordinated, focusing on the group interaction process seems promising because it allows analysing coordination in detail (HACKMAN & MORRIS, 1975; WITTENBAUM et al., 2004). It is our contention that combining a group process perspective to a complex group task, in this case group decision-making, is feasible within the framework of the theory of group action regulation, which will be explained in the following paragraph. [10]

Theories of action regulation allow for analysing the complexity of the group decision task. The core idea of *individual* action theory is the hierarchical and sequential organisation of action (CRANACH, OCHSENBEIN & VALACH, 1986). This idea was transferred analogically to *group* action (CRANACH et al., 1986; TSCHAN & CRANACH, 2003). Within group action theory, the group is regarded as a self-active system. The basic assumption is that groups aim to reach a goal through directed behaviour (CRANACH et al., 1986). The group task, in this instance the group decision, can be defined as a goal that is decomposable into subgoals represented as subtasks. This *hierarchical structure* implies the existence of a superordinated purpose (e.g. making a decision) that can be decomposed on several levels into subgoals or plans (e.g. problem definition,

distributing and reconciling information, generating decision alternatives, etc.). Furthermore, on the performance level these subgoals can again be broken down into distinguishable actions whose accomplishment is mostly automatic. The *sequential structure* of actions refers to the temporal organisation of actions. In many cases, a subgoal should only be accomplished after another has been completed (e.g. first problem analysis, then generating decision alternatives). Thus, with regard to action regulation theory, the structure and the workload of the group task define the coordination demands of the group process (GROTE, HELMREICH, STRÄTER, HÄUSLER, ZALA-MEZÖ & SEXTON, 2004; GROTE, ZALA-MEZÖ & GROMMES, 2003; TSCHAN, 2000). [11]

Figure 1 illustrates a hierarchical and sequential structure of the group decision task. The highest level represents the purpose of the group decision. The subgoals are represented by the critical functions suggested by the functional theory of group decision-making (HIROKAWA, 1985; ORLITZKY & HIROKAWA, 2001): problem definition and analysis, development of evaluation standards, generating alternatives and evaluating their possible consequences. The sequential structure of the group action implies that there are some functions which should be fulfilled before others are worked out (e.g. generating decision alternatives before evaluating the consequences of decision alternatives). Although this rather normative sequential structure makes theoretical sense, there is only weak empirical evidence that it is plausible (POOLE, 1983 in BOOS, 1996a; BOOS, 1996b; HIROKAWA, 1983) which is conceivable given the previously-mentioned reality of ego-based goals and pre-determined decision preferences. Still, there is some evidence showing that groups, for instance those working on a construction task, which follow a strict sequential logic (orientation and planning before evaluation) demonstrate better performance (TSCHAN, 1995, 2000).

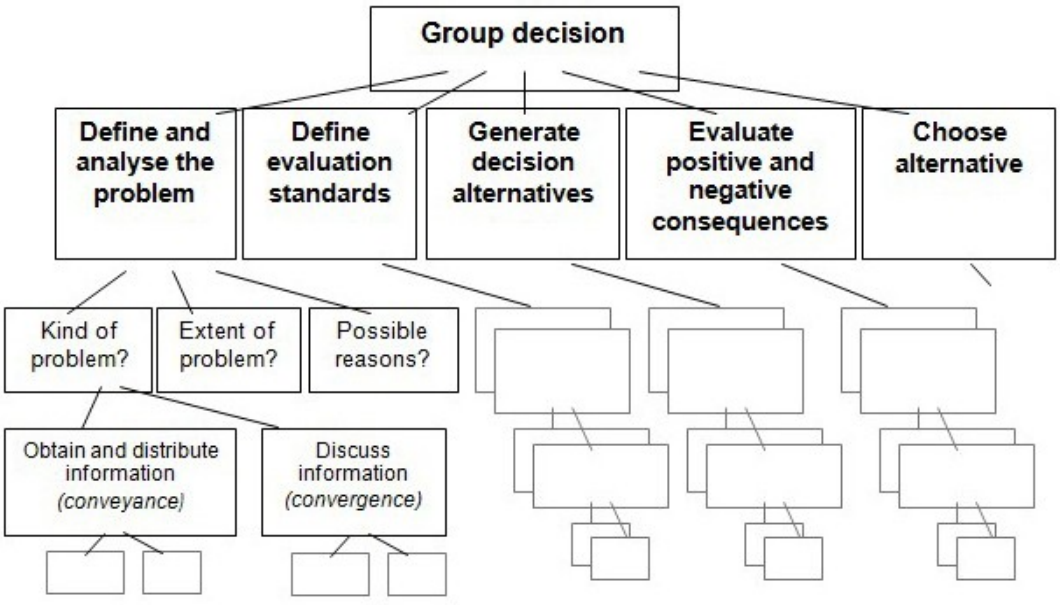


Figure 1: Hierarchical and sequential structure of group decision-making [12]

The simplified description of structured group decision-making in Figure 1 illustrates the high coordination demands of the required group process. Possible coordination mechanisms are explained within the next section. [13]

### 3.2 Mechanisms for coordinating group decision-making

We define *coordination* as the task-dependent management of interdependencies of group tasks, members, and resources by regulating action and information flow. Basically, group coordination is possible via explicit or implicit mechanisms (ENTIN & SERFATY, 1999; ESPINOSA, LERCH & KRAUT, 2004; RICO, SÁNCHEZ-MANZANARES, GIL & GIBSON, 2008; WITTENBAUM, STASSER & MERRY, 1996; WITTENBAUM, VAUGHAN & STASSER, 1998; ZALA-MEZÖ, WACKER, KÜNZLE, BRÜSCH & GROTE, in press). In spite of the conceptual difficulties in precisely defining the difference between both coordination modes (BOOS, KOLBE & STRACK, 2006), we regard *explicit coordination* as mechanisms that are intentionally used for coordination purposes and expressed in a definitive and unequivocal manner leaving few doubts regarding their underlying intention. Thus, the coordination intention of an explicitly coordinating group member is often recognised by the other group members. Explicit coordination behaviour is mostly executed by means of verbal or written communication. For example, during a group discussion, "summarising opinions", "proposing a procedure" and "requesting clarification" can be considered as mechanisms of explicit coordination. In instances of *implicit coordination*, group members anticipate the actions and needs of the other group members and adjust their own behaviour accordingly (RICO et al., 2008; WITTENBAUM et al., 1996). Contrary to explicit coordination, messages of implicit coordination are not necessarily clear and conclusive nor observable by all group members. Instead, coordination is reached tacitly through anticipation and adjustment. For instance, during a discussion group members might explain task-relevant information without being requested to do so. Thus, effective implicit coordination requires accurate shared mental models of the decision task and procedure. [14]

Both coordination modes have their advantages and disadvantages. *Explicit coordination* is unambiguous and understandable but requires communicative effort and time. Given the inherent hierarchical nature of organisational groups, explicit coordination can even offend. Implicit coordination is rather timesaving, but it is only successful if the group members have shared and correct mental models of the task and the team interaction. If this is not the case, implicit coordination can be risky. In a similar vein, WITTENBAUM et al. (1998) postulated that implicit coordination will be ineffective in complex and interdependent tasks. They suggested that divergent goals and intentions, unequal information distribution, and ambiguity of opinions and preferences require explicit coordination. As described above, group decision-making is a complex and interdependent task, which involves high information requirements and evaluation demands. Particularly, it is the sharing of individual knowledge and the discussion of its meaning relative to the group's final decision that needs to be coordinated explicitly. [15]

Thus, successful information exchange, sound evaluation of decision alternatives and consensus-finding are impossible to achieve without communicating. Therefore, some authors regard communication as a coordination mechanism in and of itself (ESPINOSA et al., 2004). WITTENBAUM and colleagues emphasised the special importance of verbal communication: "If the coordination demands for a group are high (e.g. high task uncertainty or interdependence, difficult goal), then making in-process or preplanning difficult, by narrowing or eliminating communication channels, will invariably hurt group productivity." (WITTENBAUM et al., 1998, p.201). [16]

In other words, the more complex the task, the more the group performance is influenced by communication and therefore the higher the coordination requirement is (BOOS & SASSENBERG, 2001). The relations between coordination, communication, and group performance have been especially investigated in aviation. For example, KANKI and FOUSHEE (1989) have shown that good and poor performing crews differed regarding the amount and quality of their communication. Similarly, medical research recently focused on the role of team communication in ensuring patient safety. Communication failures were the cause of errors in patient treatment (HUEY & WICKENS, 1993). In fact, they showed that besides an ineffective dealing with distractions and conflicts, the lack of questioning decisions is a mean source of error. [17]

Group decision-making also takes place in work environments beyond the high-risk environments of aviation, surgery, or emergency medicine and remains an uncertain and interdependent task with a need for explicit coordination through verbal communication (WITTENBAUM et al., 1998). The current state of research does not allow conclusions on *how* team members communicate in order to explicitly coordinate information exchange and decision-making, which is interesting given the growing body of guidebooks for practical use (e.g. EDMÜLLER & WILHELM, 2005; HARTMANN, FUNK & WITTKUHN, 2000; KANITZ, 2004; SEIFERT, 2005; WIKNER, 2002). This article attempts to contribute to a more profound theoretical conceptualisation of explicit coordination by focussing on facilitators' subjective coordination theories such as their intentions and competencies when being explicit. [18]

## 4. Subjective Theories on Explicit Group Coordination

### 4.1 The core idea of subjective theories

Within current coordination concepts, the coordination intention is regarded as the key component of explicit coordination (ESPINOSA et al., 2004). Explicit coordination mechanisms are actively and purposely used to coordinate group members' behaviour. Thus, the question arises as to what people do typically *intend* when they coordinate explicitly and why do they prefer one coordination mechanism to another. In order to obtain a deeper understanding of explicit coordination mechanisms, we studied this within the concept of individual subjective coordination theories and the related behaviour of eight group coordination experts. [19]

In their everyday behaviour, people rely on perceptions and hypotheses which can be described relative to scientific theories (RHEINBERG, BROMME, MINSEL, WINTERLER & WEIDENMANN, 2001) The notion of *theory* emphasises the action-guiding function of these personal theories which consist —contrary to scientific theories—not of methodically gained, inter-subjectively shared knowledge but of experience-based subjective knowledge. A subjective theory is not simply a single cognition (e.g. a term or a concept) but a theory that consists of complex and interrelated aggregates of concepts whose structure and function can be seen, similar to scientific theories, to provide temporal stability (GROEBEN, 1988, p.18). Also, in terms of action regulation theory, subjective theories are complex action-guiding cognitions on a superior level because they direct individual actions on subordinated levels. DANN and HUMPERT (1987) defined this form of knowledge organisation as *production knowledge*. This term refers to if-then expectations: individual assumptions about an action and its consequences are made, for example in situation A, one has to do action B in order to reach goal C. [20]

In sum, subjective theories serve a similar function for individual behaviour as objective theories do for scientific behaviour (GROEBEN, 1988): they enhance understanding, explaining, and predicting behaviour and/or events (SCHMITT & HANKE, 2003) as well as providing a means of action regulation (IWANOWSKY & BECK, 2003). In the next section we will outline the relation of subjective theories to individual behaviour. [21]

### 4.2 Subjective theories and individual behaviour

It is assumed that subjective theories are crucial for action regulation (GROEBEN, 1986; IWANOWSKY & BECK, 2003; MÜLLER, 2003). However, the question arises as to how far the individual subjective theories are actually related to an individual's behaviour. Empirically, the effectiveness of subjective theories on action has been demonstrated numerous times (see MÜLLER, 2003). For instance, DANN and HUMPERT (1987) showed that teachers' subjective theories exert a considerable impact on their individual approach to managing aggressive situations during the lessons. This relation can be explained by the theory of action regulation which assumes that conscious cognitions serve as a tool for action regulation (CRANACH, 1994; CRANACH, KALBERMATTEN, INDERMÜHLE & GUGLER, 1980). On the highest level of *goal definition* within a subjective theory, the hierarchy and sequence of goals and subgoals are defined (see Figure 1). On the *strategic level* within a subjective theory, the action process is cognitively regulated by structuring it into plans and strategies. On the *operational level,* the single action steps are organised in a self-regulated way (CRANACH et al., 1980). VALLACHER and WEGNER (1987) called this organisation the identity structure of an action and postulated a cyclical relation between an action and its cognitive representation. [22]

### 4.3 The study

As has already been stated, group decision-making is a complex task requiring explicit coordination. Explicit coordination is described as those mechanisms which are intentionally used for coordinating information and behaviour and which are expressed in a definitive and unequivocal manner with the assumption that there will be no doubts left regarding the individual's underlying intention. In order to learn more about this assumption and the specific intentions of those rendering explicit coordination, we decided to investigate the subjective coordination theories of experienced leaders and group facilitators, requiring a qualitative research approach in order to elicit their subjective theories. We explored (a) which explicit coordination mechanisms are known by these experts, (b) how they explain their use of coordination mechanisms and (c) what effects they expect as consequences of their coordinating behaviour. The results of our study should give us a more applied understanding regarding coordination of group decisions and sharpen the theoretical concept of explicit coordination. [23]

## 5. Methods

A common method for assessing subjective theories is the qualitative expert interview (e.g. BOGNER & MENZ, 2005; SCHMITT & HANKE, 2003). The research objective of expert interviews is to analyse the structure of experts' knowledge and action (MEUSER & NAGEL, 2005, p.76). Thus, we decided to conduct expert interviews as an approved and frequently used knowledge-elicitation technique (COOKE, 1994; DOOLEY, 2001). A further advantage of the interview method is its familiarity to experts, especially in contrast to standardised questionnaires. By its very design, experts are more inclined to elaborate upon their expertise when asked focused questions in an interview vs. having to choose among preformulated answers. The interviews were conducted as focused interviews and their methodology is presented in the following section. [24]

### 5.1 Focused expert interviews

The method of the focused interview goes back to MERTON and KENDALL (1946). The basic idea of this type of interview is to focus on a predefined topic or situation that has been experienced by the interviewee and is known to the researcher (BORTZ & DÖRING, 2002; HOPF, 1995; LAMNEK, 1989; MERTON, 1987). During the interview the individual's subjective experiences and interpretations regarding the predefined topic are assessed (HOPF, 1995; LAMNEK, 1989). The interview aims at broadening the topic, which may occur when discussing aspects that have not been anticipated by the researcher. Depending on the chosen topic, interview guidelines are developed depicting basic anticipated aspects of the topic. However, the researcher is given the freedom to deviate from the guidelines in order to follow the expert's detailed descriptions of a specific aspect (LAMNEK, 1989) or to ensure the flow of conversation (BARTHOLOMEW, HENDERSON & MARCIA, 2000). This semi-structured interviewing supports the inclusion of non-anticipated yet important topics (LANGDRIDGE, 2004; SCHNELL, HILL & ESSER, 1993) as well as the

circumscribed interest of the researcher (topic only) and the expert status of the interviewee are taken into account (MEUSER & NAGEL, 2005). Another advantage lies in the comparability of individual interview results (LANGDRIDGE, 2004). A final advantage has been suggested by TRINCZEK (2005) that guideline-based interviews are especially useful for questioning leaders because of their expectations of a structured interview setting and a clear distribution of roles (interviewer vs. interviewee). [25]

### 5.2 Interview guideline

The interviews conducted for this study focused on explicit process coordination. We developed an interview guideline that allowed us to assess the experts' subjective theories regarding coordination beginning with their experience of a group-decision making task that they facilitated. The experts were asked to think of a difficult situation during their facilitation of this group decision-making process and to describe their own behaviour in this situation. Thus, we could ensure that the experts talked about *behaviour* and gave reasons for it, instead of expanding upon their abstract knowledge. [26]

At the beginning of each interview, we explained its primary objective and our procedure. We emphasised our interest in group coordination, especially in explicit coordination (see Appendix 1 for the interview guidelines). Subsequently, the experts were asked to think of a problematic group discussion that they had facilitated. It had to be a situation in which they had felt the necessity to make use of their entire group facilitating competencies and intervene. We asked the interviewees to first describe this situation, specify the difficulties and challenges they had faced during this situation, and then describe their thoughts and feelings in detail. We then asked them to explain the behaviour they used in order to deal with what they specified were the situational difficulties and challenges. For further and deeper analysis, we asked the experts if there was any professional behaviour they had especially liked or disliked. To analyse their production knowledge (grasp of if-then-relations DANN & HUMPERT, 1987) we asked the experts to think again of the previously described intervention and try to say *when* they had intervened and if any specific actions of the whole group or single group members preceded the intervention. In order to further assess the expert's expectations regarding the effects of their respective interventions, we asked them for the factual or potential consequences of their interventions. Finally, we elicited from the experts the sources of their competencies (e.g. training courses, formal education, mentors, experience, etc.). [27]

### 5.3 Sample

The aim of our study was a multi-faceted description of the experts' subjective theories on explicit group process coordination. Therefore, the expert sample had to be heterogeneous in age, gender and work context (MAAS & WUNDERLICH, 1972; WITT, 2001). Eight experts from different occupational fields and with different experiences with work groups were interviewed. Table 1 shows their occupation, age, and gender. The experts were recruited from the work area of

the authors. All eight experts had many years of experience with facilitating small group processes.

| | Expert | Age (in years) | Gender | Work context |
|---|---|---|---|---|
| A | Master of Social Sciences | 28 | Male | Group facilitator, education in gestalt therapy |
| B | Consultant | 65 | Male | Independent trainer and consultant |
| C | Consultant | 42 | Female | Independent trainer and consultant |
| D | Administrative officer of public administration department | 63 | Male | Administrative officer (department of environment), responsible for approval procedures |
| E | Manager | 48 | Female | Team leader within a research institute (sciences) |
| F | Manager | 63 | Female | Head of a hospital's patient office |
| G | Manager | 62 | Male | Head of the department of estate management of an airport |
| H | Manager | 47 | Male | Executive in a railway organisation (department of environment) |

Table 1: Experts' profession, age, gender, and work context [28]

### 5.4 Interview procedure

All interviews were conducted by the primary author and took place either in the interviewees' offices or homes. After initial greeting and small talk, the interview objective and procedures were explained and permission to audio-tape the interview was requested. In no case did the interviewees object to being audio-taped. Beside audio-taping, major points were noted during the interview. At the end of each interview the experts were thanked and offered a report on the results of the study. Immediately afterwards a protocol was written containing basic impressions and notes concerning the atmosphere of the interview. The interviews lasted between twenty-five and ninety minutes. [29]

### 5.5 Procedure of data analysis

The data of the focused expert interviews were analysed using a content-analytic method developed for semi-structured interviews by MEUSER and NAGEL (2005). The method comprises data summarising, inductive development of categories, and theoretical abstraction. It consists of six steps: (1) transcription, (2) paraphrasing, (3) development of captions, (4) topical comparison, (5)

psychological conceptualisation, and (6) theoretical generalisation. We decided to use this method of data analysis because it is in line with established and proven content-analytic methods (BARTHOLOMEW et al., 2000; FRÜH, 2004; LANGDRIDGE, 2004; MAYRING, 2003) and was specifically developed for interview data. [30]

We will now summarise the procedures taken for Steps 1 through 3. Step 4 (topical comparison) and the combination of Steps 5 and 6 (theoretical generalisation) will be presented in the results section. [31]

*5.5.1 Step 1: Transcription*

Audio-taped interview content was transcribed but not what was said during breaks, nor intonation or other para- or nonverbal behaviour. Analysis of the interview discourse was not a research objective, so we opted for a relatively time-saving transcription procedure. As described above, the interviews were structured on the basis of a guideline, but variances in content were possible and sometimes the interviewees talked about something that was not related to the coordination topic. These interview sections were not transcribed. [32]

*5.5.2 Step 2: Paraphrasing*

During Step 2 we reformulated the experts' statements to a comparable level of abstraction in order to serve the caption coding in Step 3. [33]

*5.5.3 Step 3: Development of captions*

In Step 3 we developed captions for the paraphrased section. In doing so, it was nevertheless important to maintain the terminology of the experts to avoid unintentionally editorialising their points (MEUSER & NAGEL, 2005). Within each of the eight paraphrased interview transcripts, similar topics were coded to a main caption. [34]

*5.5.4 Step 4: Topical comparison*

After having assigned similar sections to main captions *within* the interviews, the results could be compared *between* the interviews. Similar to Step 3, in Step 4 we looked for comparable sections between the interviews and adapted the captions accordingly. [35]

*5.5.5 Step 5 and 6: Psychological conceptualisation and theoretical generalisation*

In Steps 5 and 6, which we combined, we were allowed to leave the terminology of the interviewees and analysed the acquired knowledge regarding explicit coordination. We systematically looked for similarities and then empirically related the categories of Step 4 to the concept of explicit coordination (MEUSER & NAGEL, 2005). The results of Steps 4 through 6 will be presented in the following section. [36]

## 6. Results

### 6.1 Step 4: Topical comparison

Five main topics emerged from the interviews which we present in the following sections. [37]

#### *6.1.1 Context, occasion, conditions, and goals*

All experts reported about the *general conditions* in which they led or facilitated decision-making groups. In addition to regular team meetings, group conflicts, meetings with external persons and crisis interventions were mentioned. Depending on their role, the experts directed the group either as a leader or were asked for support as an external group facilitator. Furthermore, *specific occasions* for coordination were pointed out, such as intervening when group members did not follow the suggested procedure or persevered a certain topic. According to our interviewees, there was a consensus that the *goals* of effectively coordinating group decision-making were realising equality, objectiveness, consensus, and structuring the discussion. Basic subgoals of such decision-making discussions were receiving and sharing information, solving problems, dealing with emotions during conflicts, and then eventually making decisions. Frequently, the experts would anticipate the expectations, competencies, and moods of the group members—demonstrating that their explicit coordination mechanisms were augmented by skills in implicit mechanisms. [38]

#### *6.1.2 Demands and concerns*

The experts spoke about *demands* they had to meet. Such demands were patience, attention, appreciation, coping with private problems of single group members, knowing oneself and dealing with own feelings, and not relinquishing their role of directing the discussion. Often, these demands were related to expressed *concerns* during group decision-making facilitation such as dislikes, role conflicts, maintaining neutrality, and dealing with disturbing group members. [39]

For example, Expert B (consultant) described one demand in the following way:

> "And then something would suddenly happen that demanded 150 percent of my empathy, attention and concentration on another person. Can I shift quickly enough? Or do I even overlook it?" [40]

Expert D (administrative officer) described some of his concerns with the following words:

> "There are those who sit across from you and are the type who try to agree with what you say but there are also those who engage you in a landmine game where they make little faces like a cynical or disdainful grin. There are also those who will trap you when you perhaps say something that's not totally correct, and then want to prove to you with such overreaching relish that you are not up-to-date." [41]

### *6.1.3 Intentions*

The coordination experts had intentions in terms of specific attitudes towards their job as facilitators. In their *general attitude*, they perceived their own responsibility regarding the decision differently: while senior managers in a facilitating role felt responsible for the decision outcome and sometimes even made the decisions themselves, non-managerial facilitators felt only responsible for the decision-making *process*. [42]

For instance, Expert G (manager) described his attitude with the following words:

> "Everyone can say what he knows about the subject but the final decision rests with me on how the solution is implemented." [43]

Contrary, Expert C (consultant) described her attitudes towards her job in the following way:

> "[...] because I'm contemplating at the moment, I am here to be responsible for the process. And it's my job to drive the process, also at the same time to respect that because of this, everyone—he and she—can contribute how they need it." [44]

Furthermore, some experts had attitudes toward the gender-specific potential for conflicts, towards the effectiveness of their interventions, and towards the behaviour of the group members (e.g. restraints, need for directness, getting off the point). [45]

### *6.1.4 Competence*

Questioned on the sources of their competencies in leading and facilitating groups, the experts stated that they had obtained their competence by both experience and training. They also reported to have learned from other people (e.g. superiors). Not all competencies were perceived as teachable by training. [46]

For example, Expert B (consultant) described the learning possibilities in the following way:

> "One cannot teach that abstractly. But what you can really teach are the methods. Cards and handwriting. However, in every phase there are specific interpersonal challenges." [47]

Expert D (administrative officer) described the role of experience in learning group facilitating with the following words:

> "And then much of it naturally depends on experience—whether you're someone who has led only a couple of discussions or if you've already facilitated umpteen discussions [...]. And there are things one can't somehow learn from a textbook, not through book-learning. That's acquired by—I repeat—that's acquired by experience." [48]

### *6.1.5 Methods and techniques*

Detailed inquiries revealed that the experts had precise knowledge about their behaviour during leading a discussion and how it either minimised or exacerbated process losses. The actions and interventions mentioned by them could be classified into categories of preparation (e.g. clarifying the job and goal, developing a concept, preparing written notes), considering each group member (e.g. observing behaviour and contributions, perceiving their feedback), general techniques (e.g. taking notes, asking questions, defining rules) and the appropriate use of these methods (e.g. if a group member tends to ramble on, she/he is asked to briefly summarise their points). [49]

For example, Expert C (consultant) described a situation regarding specific use of facilitation techniques with the following words:

> "If someone rattles on and on, then I make the body posture even more non-receptive and to be sure, the person stops talking. Maintaining very clear eye-contact, I'll also have everyone else in sight, but then I very clearly focus on this person. And usually that has the consequence that they also look at me. And then I address the person directly, asking them to reduce it to a core sentence. And if they start from the beginning again, that's the point where I, if I see that happening, I stand up, for instance. It's made absolutely clear that in wrestle around this situation the cycle is closed—the meaning of me observably standing up." [50]

She reported another situation of intentionally using specific interventions:

> "I can think of another situation in this group, where there was a decision on how the participants come together as a group. And I, the idiot, had laid this out to them as a choice. Then a small power struggle ensues between two of them. Then everyone looks at me. Then I revoked discussing it out. Then everyone was completely unsure. But that I didn't revoke. What I learned from that is, it's good to introduce cooperative measures, but there are simply situations where the best thing you can do is give clear directives." [51]

These techniques are of special interest for the concept of explicit coordination because they contain explicit coordination actions which are organised as production knowledge. [52]

In the next section we will present the transformation of the results of Steps 1 through 4 into a theoretical concept of explicit group coordination. [53]

## 6.2 Steps 5 and 6: Psychological conceptualisation and theoretical generalisation

In combining Steps 5 and 6, we systematically looked for similarities and then empirically generalised the categories of Step 4 to the concept of explicit coordination (MEUSER & NAGEL, 2005), rendering specific information regarding the components of the respective subjective coordination theories. This

was, by definition, an interpretative step, mapping key terminology used by the interviewed experts (e.g. "leading the group", "steering the group") to the theoretical concept of explicit coordination. The ideas reported by the interviewees were summarised to the five topics of Step 4 within the context of either leadership or facilitation. Both are related to explicit coordination, although differentiating between *leadership* and *coordination* is conceptually difficult. YUKL (2002, p.7) defined leadership as "the process of influencing others to understand and agree about what needs to be done and how it can be done effectively, and the process of facilitating individual and collective efforts to accomplish the shared objectives". In other words, YUKL considered leadership a superordinated concept with coordination being one of its key features. In a similar vein, WEST (2004, p.52) focused on the long-term and strategic aspects of leading teams and defined leadership as the "process of making appropriate strategic interventions in order to motivate and give direction to the team". On the other hand, coordination has been considered the superordinated concept, illustrated in cases where group members coordinate themselves without a formal leadership (SCHATTENHOFER, 1995). This perspective of leadership as a coordination mechanism is also shared by GROTE, ZALA-MEZÖ and GROMMES (2003) who considered leadership and heedful interrelating (WEICK & ROBERTS, 1993) as coordination mechanisms in addition to other explicit and implicit mechanisms. Thus, because of their overlapping definitions, coordination and leadership remain confounded. Similarly, it is also difficult to distinguish *coordination* and *facilitation* in the context of group decision processes. Contrary to leadership, facilitation does not include goal-directed influencing of others, but merely supporting the interaction and communication within the group. A group facilitator is not responsible for the decision outcome but only for the decision-making process. Obviously, the term facilitation is not used in a consistent manner throughout the literature and instead is used rather non-specifically to describe directing group discussions (HARTMANN et al., 2000). [54]

At this point we depart from further debate regarding the terminology of leadership vs. facilitation. We will now transfer the reported methods of directing decision-making discussions by the expert to the concept of explicit coordination. [55]

Table 2 shows the theoretical generalisation of the subjective coordination theories. The experts interviewed were able to report precise details of the necessity for coordinating actions. They regarded the *coordination demand* depending on the *occasion and intention* such as the group task (e.g. information exchange) and considered coordination as significant for good interaction. Special coordination demands were perceived through the anticipation of the behaviour of different group members. These assumptions about others' behaviour were reflected in *attitudes* towards group members. Furthermore, the results convey that the experts could describe their goals (e.g. structuring the discussion) and the appropriate behaviour to reach their goals (e.g. procedural question) precisely. Therefore, we can assume that the experts' subjective coordination theories are organised hierarchically and sequentially in terms of action regulation: goals (e.g. realising equality in a discussion) are structured into operations on different *hierarchical* levels—on a strategic level (e.g. defining

rules) and on a behavioural level (e.g. allowing somebody to speak). Sometimes, these operations were additionally organised in a temporal sequence (e.g. defining rules at the beginning of the discussion and then referring to these rules during disturbances).

| **Content categories** | **Examples** |
|---|---|
| Occasion and intention of coordination | *Task* |
| | Information exchange |
| | Conflict reduction |
| | Crisis intervention |
| | Leadership |
| | *Realising the process* |
| | Attempts to achieve equality during decision-making |
| | Each participant should reach their goal to some point |
| Demands on coordinator | Reacting to very different group members (regarding competence, gender, mood …) |
| | Understanding reasons for conflicts |
| | Heuristics for coping with difficult situations during discussion |
| | Conflict of roles |
| | Controlling of own and group members' behaviour |
| Attitudes of coordinator | Understanding of one's role |
| | Leadership vs. facilitation |
| | Leadership: decision made by leader |
| | Facilitation: decision made by group |
| | Strike a balance between active intervention and self-regulation |
| | Mutual enhancement |
| | The more autonomy, the less explicit coordination necessary |
| Learning explicit coordination | Through experience; training; trial-and-error-learning; learning by models; |
| | Limited teachability |

| **Content categories** | **Examples** |
|---|---|
| Coordination mechanisms | Before the decision process: |
| | Get to know the group members; goal clarification; time schedule definition; definition of main points; prepare written notes; explain own role |
| | During the decision process: |
| | *Instructions* |
| | Ask somebody to do something; to allow somebody to speak; suggest a procedure; define rules; advising |
| | *Structuring* |
| | Goal definition; explain one's own behaviour; making and using notes; summarise; repeat; decide; structure the process in phases |
| | *Questions* |
| | Clarification question; solution question; procedural question |
| | *Other* |
| | Do not interrupt; open body position; maintain eye contact; monitor the group members; verbalise problems; choose mechanism dependent on the situation in the group |

Table 2: Experts' group coordination subjective theories [56]

Regarding the subjective coordination theories of each expert interviewed, we were especially interested in their production knowledge, which, as mentioned earlier, is characterised by if-then-expectations. The results showed that depending upon the problem (e.g. a group member would not stop talking), a coordination mechanism was used (e.g. group member was asked to summarise their point). A consequence following the coordination mechanism was perceived (e.g. after the brief summary the group member stopped talking and the group was able to continue working) which in turn provided feedback that either confirmed or adjusted the experts' production knowledge. [57]

Concerning group decision-making, we were particularly interested in mechanisms used by the experts to coordinate information exchange. The reported coordination mechanisms can be classified (see Table 2) into mechanisms used *before* the discussion (e.g. preparing, scheduling, and making notes) and mechanisms used *during* the discussion (e.g. instructing, questioning, structuring, and signalling via nonverbal behaviour). These mechanisms were used depending upon a particular situation (*production knowledge*). In other words, based on a coordination occasion, a specific coordination mechanism was used, followed by a certain consequence. This sequential structure is shown in Figure 2.

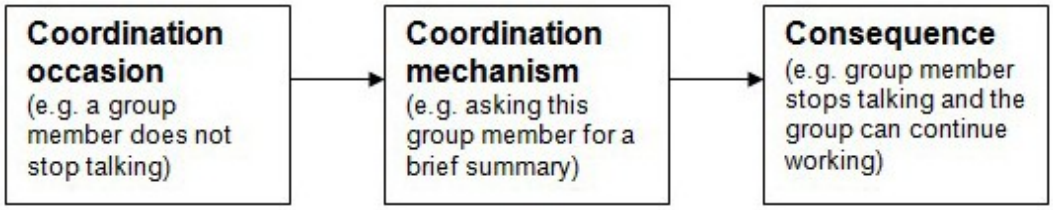


Figure 2: Illustration of the experts' production knowledge about appropriate use of coordination mechanisms [58]

After the following summary of the results of the content analysis, we will discuss the theoretical importance of these results. [59]

## 7. Discussion

The study focused on coordination of group decision-making, highlighting the importance of sophisticated coordination and communication for groups' effective information sharing and optimal decision-making. We explored the subjective coordination theories of eight experienced group facilitators and investigated which explicit coordination mechanisms were known by these experts, how they explained their use of coordination mechanisms and what effects the experts expected as consequences of their coordinating behaviour. [60]

We can sum up the results of the content-analysis of the expert interviews with five essential points:

1. Prior to and during the coordination of group discussion, the experts perform coordination mechanisms based on assumptions about the behaviour of individual group members and of the group as a whole. These assumptions affect their choice of coordination mechanisms. This relationship is predominantly organised in the form of non-deterministic if-then clauses which form the basic components of the experts' production knowledge.
2. This production knowledge is not confined to single propositions but instead is comprised of two elements serving as explanations of *why* a specific coordination mechanism might fit as an appropriate tool to manage a specific occasion. One element is the expert's attitude towards coordination (e.g. leading vs. facilitating), the other component is their individual knowledge regarding the functioning of groups. These two components provide an explanatory basis for the expert's choice of a coordinative intervention and their reasoned expectation regarding the effects of this intervention.
3. The coordinating intervention is rarely conceived as a single act but as a set of actions organised hierarchically as well as sequentially.
4. The temporal structure of coordination activities spans not only the actual group decision-making process but extends to the phase prior to group interaction. The experts prepare the meetings by negotiating their role and delivering written notes and schedules. They use implicit (e.g. eye contact) as

well as explicit (e.g. summaries of what has been communicated) coordination mechanisms. The variety of coordination mechanisms that the experts reported in our study can be categorised by the taxonomy of coordination modes proposed by WITTENBAUM et al. (1998).

5. The results of our study show that the two-dimensional taxonomy of coordination modes of WITTENBAUM et al. (1998) involving explicitness and time can be extended to a three-dimensional dynamic perspective which factors in the group-coordinator's subjective coordination theories. The coordination activity displayed by a group facilitator influences the group situation and will be followed by yet another, subsequent coordination activity. Such coordination cycles occur throughout the entire group decision-making process. [61]

We found that the production knowledge of the eight experts interviewed can be condensed into a basic model of group coordination (see Figure 2) underlying their professional practice and that their subjective coordination theories can be integrated into the well-known input-process-outcome (IPO) model of small group research (BOOS, KOLBE & STRACK, 2008, see Figure 3). The model describes a sequence where, starting from an occasion or a critical event within the group process (*input*), the coordinator performs a specific coordination activity (*process*) and then perceives the reaction of the group or individual group members (*outcome*). Our probe into subjective coordination theories reveals that this basic IPO-sequence is considered to be moderated by three additional group coordination variables: the task requirements perceived by the expert, the expert's attitude towards coordination, and the expert's knowledge about group functioning.

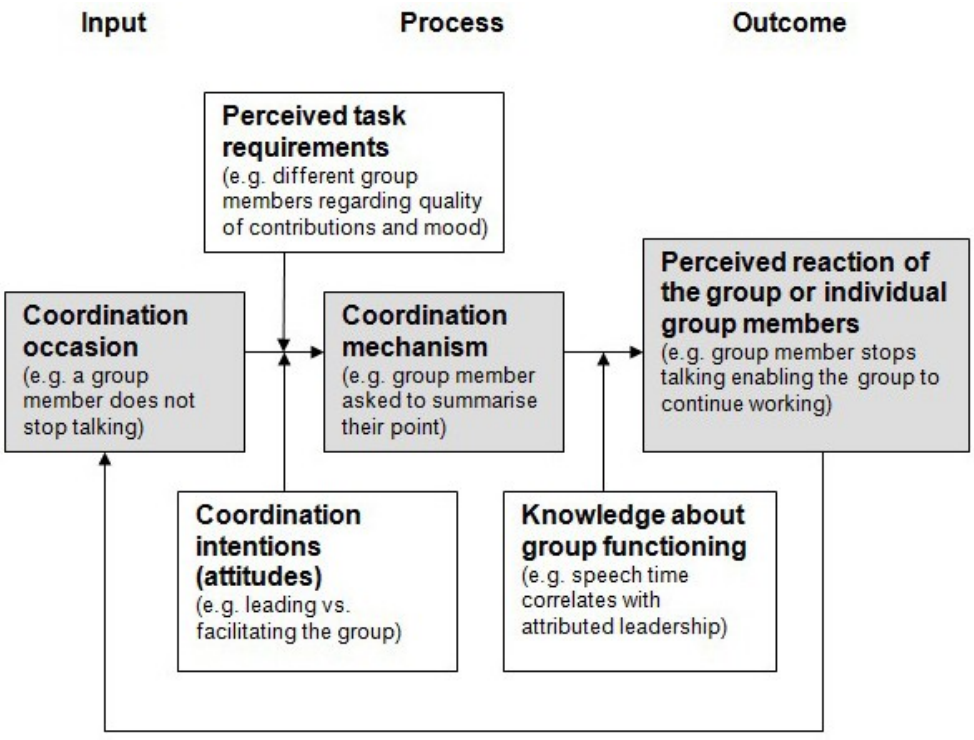


Figure 3: Integration of the subjective coordination theories in the input-process-outcome-model of explicit coordination of group-decision-making (BOOS et al., 2008). [62]

The perception of a specific state of the group process being an occasion requiring coordination activity depends on the expert's perception of the group task in question. This result resembles the postulate by ESPINOSA et al. (2004) and WITTENBAUM et al. (1998) as to the moderating function of the group task for the choice of a likewise suitable coordination mechanism (i.e. the greater the complexity of the group task, the greater the need for explicit coordination). The outcome of the coordination intervention is compared to the intended coordination goal and assessed by criteria from the coordinator's attitude towards coordination and knowledge about the functioning of groups. [63]

The results suggest a significant extension of the conceptualisation of explicit vs. implicit coordination. As postulated by ESPINOSA et al., the purposeful use of mechanisms is a defining characteristic of explicitness. However, our findings suggest that implicit coordination mechanisms can also be used purposefully. For instance, using eye contact instead of explicitly asking somebody to do something was reported as a face-saving and unobtrusive way of giving orders. Thus, the presence of a coordination intention might not be considered as the differentiating feature of explicit versus implicit coordination. [64]

Possibly one of the most important methodological challenges of research on expertise is the fact that although experts perform their area of expertise skilfully and intelligently, they are often not able to verbalise their knowledge to its full extent (BROMME, 1992, p.121). Our results provide insight into the subjective coordination theories of experts. Nevertheless, we can only assume that the entire breadth of attitudes, intentions, and heuristics guiding the expert's coordination behaviour was not captured by our interviews. Subjective theories are not necessarily accessible to consciousness and therefore not necessarily consciously available for verbalisation (GROEBEN, 1986). This sets a limitation on interviews as a method of full retrieval of expertise. The goals are by definition conscious, but the experts might not be fully aware of their subgoals and concrete actions for goal attainment (CRANACH et al., 1980). Actions normally are automatised with increased experience (VALLACHER & WEGNER, 1987). However, this tendency toward decreasing conscious control renders the assessment of subjective theories that are much more worthwhile. "In rendering actions progressively more familiar, more automatic, and otherwise easier to do, experience enables action to be understood in terms that transcend the action's mechanistic underpinnings and highlight instead its potential meanings, effects, and implications" (VALLACHER & WEGNER, 1987, p.8). [65]

Regarding our method, the limited number of eight interviewees might be another point of discussion. We are aware of the fact that drawing generalisations from empirical data requires an appropriate number of participants. However, we contend that the manifoldness of the responses counters some of the limitations of the small sample size. The objective of our study was to gain insight into the individual's perspective of coordination. For that exploratory reason, we think that eight well-experienced experts serve as a reasonable and valuable source to identify subjective coordination theories. [66]

Our study shows that experts dispose of a variety of coordination mechanisms. However, its focus on the subjective perspective of the experts does not support conclusions regarding the actual *effectiveness* of these mechanisms for group decision-making, e.g. the *extent* of their compensation for process losses. This leads to the need for studies examining the impact of specific coordination mechanisms on group-decision process and outcome. We have performed some past studies that addressed questions of whether the use of particular coordination mechanisms leads to better group decisions. For example, in a group decision-making experiment having three-person groups discuss a personnel selection decision, we examined the efficacy of two coordination mechanisms reported by the experts in this study. The group discussion was supported by a neutral facilitator being trained in two mechanisms of group coordination, *asking for information* and *repeating already mentioned information*. The study showed that *asking for information* did not improve the decision quality. However, *regularly repeating already mentioned information* significantly enhanced group decision quality (KOLBE, 2007). Another study of ours (KOLBE & BOOS, 2007) found significant differences in the coordination behaviour between successful and unsuccessful decision-making groups: successful groups used more explicit coordination mechanisms such as instructing (e.g. suggesting a procedure), structuring (e.g. repeating information), and questioning (e.g. solution and clarification questions) than unsuccessful groups, mapping to the findings of WITTENBAUMs taxonomy. Further studies are necessary to validate these results in different settings. [67]

From our point of view, further coordination research should focus on three points. Firstly, context-dependent effectiveness of single and combined coordination mechanisms should be systematically evaluated. Secondly, we need more knowledge on the transition and interaction of implicit and explicit coordination and their task-adaptiveness. As a prerequisite, the definitions of explicitness versus implicitness should be clarified. And thirdly, because both coordination and motivation are key functions of leadership, their interplay should be investigated in order to promote progress on leadership theory development. [68]

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## Appendix 1

Guideline for the focused expert interviews

1. Introduction
   a. We are studying communication and coordination in small groups and are particularly interested in explicit coordination (direct and verbal intervention) used by group leaders or facilitators during group decision-making.
   b. Thus far, there is little known about the nature of explicit coordination. We are therefore conducting these interviews in order to learn what experienced group coordinators think of it.
2. The interview will last about 30 to 45 minutes.
3. I will begin the interview by asking you to imagine a certain situation. Afterwards we are going to talk about this situation. I am interested in your experiences and ideas, thus I will let you talk and minimise my interruptions.
4. I would like you to tell me everything that comes into your mind, even if you think it might be useless, trivial, or irrelevant.
5. I would like to audiotape the interview, if that is okay with you?
6. Remember a difficult situation during a group decision-making process you were in charge of coordinating as a leader or facilitator. In this situation you might have felt the necessity to make use of your entire group-facilitating competencies. Describe this situation in detail, please.
7. Could you describe in detail the difficulties you faced in this situation? What crossed your mind at the time (and how did you feel)?
8. What exactly did you do in this situation in order to meet the challenges you have just described?
9. Among the interventions you have just described, are there some you especially like(d) or dislike(d)? If so, why?
10. If you think about the interventions you have just described (e.g. …), do you think that their use depended somehow on the situation in the group or on the behaviour of a single group member? Could you describe in detail when you have used a certain intervention?
11. Where and how did you acquire your knowledge and skills you have just described?
12. At the end of the interview, I have some socio-demographic questions (age, years of experience, …).

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