

Design Dialogue Groups as a Source of Innovation: Factors behind Group Creativity

Hans Björkman

Sif – a Swedish national trade union for white-collar workers in Industry – has recognized the importance of enhancing its service innovation processes through careful listening to its members. This article will discuss the Design Dialogue Group (DDG) methodology that has been developed through collaborative research between Sif and the Fenix Research Program, in order to enhance group creativity and organizational learning. The emphasis of this paper is restricted to the issue of enhancing group creativity, and literature and empirical data will be used in order to discuss the factors enabling and restraining creativity. The major assumption behind this study is that many factors behind group creativity can be controlled. Thus, a careful design of the group creativity process would increase the likelihood for success since measures to enhance creative behaviours and to avoid pitfalls can be planned and/or taken by a group moderator. In short, the aims of this study are twofold: (1) to relate prior research contributions to DDG experiences in order to augment our understanding concerning factors enhancing and threatening creativity in DDG settings and (2) to systematize these findings into a set of proposed design principles related to domain-relevant skills, creativity-related processes, and task motivation. These propositions concern the recruitment of participants, group characteristics, and group processes.

Introduction

Many organizations face problems related to their innovation processes. Gathering customers, consumers or users in order to develop innovative ideas, to further develop existing concepts or to refine products or services in different kinds of user groups has been an important and growing practice for some time. Sif – a Swedish national trade union for white-collar workers in industry, has recognized the importance of enhancing its service innovation processes through careful listening to its members. This article will discuss a methodology that has been developed through collaborative research between Sif and the Fenix Research Program in order to enhance group creativity and organizational learning. The emphasis of this paper is restricted to the issue of enhancing group creativity, thus the literature and empirical data will focus on factors enabling and restraining creativity.

Researchers have found that creativity is one critical factor among others behind innovation. On a more general level, creativity is a topic of wide scope that is important at several levels. Creativity is relevant at the individual level, for example in problem solving, and at a societal level, creativity can lead to new scientific findings and new inventions. To remain competitive, individuals and organizations must adapt existing resources to changing task demands (Sternberg & Lubart, 1999). While several definitions of creativity have been offered (e.g. divergent thinking as fluency (the ability to produce a large number of ideas), flexibility (the ability to produce a wide variety of ideas), originality (the production of unusual ideas) and elaboration (developing or building on other ideas) (Guilford 1967), we have chosen the definition put forth by Amabile (1996) as the development of novel ideas that are useful.

This study focuses on issues related to group creativity and is based on the

researcher's prior experiences and research related to the development and evaluation of the Design Dialogue Group (DDG) method. Experiences from numerous DDG settings indicate that group results were to some extent evaluated as being creative, group participants evaluated their contributions as being creative and the design dialogue platform has been subsequently been extensively used in the organization. Thus, it makes sense to delve into the issue of group creativity to investigate behaviour in group settings and to develop road maps in order to enhance group performance regarding creativity. The aims of this study are twofold: (1) to relate prior research contributions to DDG experiences in order to augment our understanding concerning factors enhancing and threatening creativity in DDG settings and (2) to systematize these findings in a set of proposed design principles. After a brief presentation of the DDG method, a model for group creativity is presented, followed by a section where design principles for group creativity are proposed. Lastly, conclusions and managerial implications are presented.

The Design Dialogue Group

The development of the DDG methodology is part of a long-term project aiming at strategic renewal of Sif as a trade union and has been organized in collaboration with the Fenix Research Program. The author has been employed by Sif for many years and is currently concluding his PhD studies in the Fenix Program. Additionally, the author has been involved in preparations and evaluations of all sets of sessions and has also moderated many DDGs. A more thorough description of evaluation results from one particular set of sessions aiming at developing activities for managers has been published elsewhere (Björkman, 2003).

In short, the DDG methodology is similar to focus group methodology. The focus group methodology has become popular in market research because of its ability to produce rapid results with high face validity and involve many participants at a comparably low cost. The method is friendly and respectful (Frey & Fontana, 1993; Kreuger, 1994). The focus group methodology originates from sociological and mass media research during the 1940s. Merton used the notion 'focused interview' for this qualitative method for studies of attitudes, values and complex phenomena that occurred in social interactions in the 1950s (Merton, Fiske and Kendall, 1990). Some properties are common to most definitions of focus groups

(Bormann, 1972): the purpose is to collect qualitative data, the participants have something in common and the discussions are held from a specific focus, e.g. a film, a specific event, a scenario, a specific notion or an imaginative theme.

A typical focus group consists of four to twelve participants and a moderator. The group interview duration may vary with one and a half to four hours as being normal (Edmunds, 1999). Frey and Fontana (1993) define focus groups as structured and formal, while brainstorming groups are unstructured with the leaders non-directing. Others claim that the role of the moderator in a focus group may vary from non-directing to strongly directing. Millward (1995) claims that the moderator may control *what is discussed* and *the process*. What is discussed should not be strongly controlled in a focus group. The control over the process normally varies during the focus group meeting.

While the majority of focus groups are organized by market research consultants as assignments from the organizations that will use the results, DDGs are focus groups that are organized by the organization to use the collected data *in its own developmental processes*. Furthermore, the specific properties that distinguish DDGs from traditional focus groups are the following:

- participants are invited to a session by the organization in which they are members (or potential members);
- the sessions are moderated by an organizational member (a Sif employee);
- the sessions are generally held on the organization's premises;
- the sessions not only have the purpose of bringing experiences and ideas to the organization, but also create relations between the participants and between the participants and the organization;
- the sessions are video recorded and followed on a TV-screen by a group of organizational employees in order to enhance the learning in the organization; and
- all sessions are evaluated by the participants.

The methodology has been used in Sif with a wide array of purposes:

- the development of activities for managers;
- the mapping of competencies and skills required for members in the construction consultancy industry;
- preparations of two national negotiating rounds;
- the development of a virtual community platform for members; and

- the development of tools for web-based learning related to individual and trade union rights and obligations in the labour market.

There are three distinctive phases in the DDG process: (1) recruitment of participants, (2) execution of the group session and (3) evaluation of the process results during which research findings and results are assessed and analysed by the engaged group participants and internal service developers. In most cases, the recruitment has been conducted by an external market research firm, from directives concerning the participants' professional occupation and other factors. An example of a typical group session (in this case targeting managers) is given to illustrate its work procedures.

The dialogue group meeting was held as a two-hour session, mediated by the author. The discussions focused on three aspects:

- 'Being a manager' – situation, role, opportunities, threats;
- 'How can the managers' role and situation be improved' – what kind of knowledge and skills needed to be developed?;
- 'What could "external parties" (such as trade unions) do to enhance the managers' situation?'

Each of these aspects were described by each participant after a short time for individual reflection and discussed in the group. Documentation by the dialogue groups and analysis of the video recordings were used to produce a list of service ideas that had been discussed. This service idea list was then used in the evaluation process.

For this study, all sessions were evaluated, with participants assessing the DDG method very positively. Their assessments related to group creativity and individual creative contributions have also been very positive. The

assessments made by internal service developers have resulted in the following:

- some ideas are assessed as creative;
- many ideas are expressed at a systems level rather than at a detailed level;
- many ideas are reproducible;
- ideas assessed as creative are evaluated as less reproducible than other ideas; and
- the capacity in the organization to use newly obtained ideas is a problem.

Two specific examples will be used here in order to exhibit evaluated issues and results. The first is from the pilot study, during which the DDG methodology was initially developed. The participants individually assessed the method by considering various proposals. The results were measured on a 1 to 10 scale where 1 = disagree and 10 = agree completely (Table 1).

In the second example, the participants' evaluation of 12 DDG sessions related to the development of a virtual community platform for members show similar results. An overall performance index was created from items related to assessed opportunities to make oneself heard in the group, group involvement in the task, group creativity, individual involvement in the task, individual creativity, the quality of the exchange of ideas and experiences, whether it was worth the time to participate and whether the group contributed important ideas to Sif. The individual assessments of the sessions have been strongly positive. Group means on the performance index were from 7.35 to 9.21, with a group average of 8.59. The group means of the assessments concerning group creativity ranged from 7.57 to 9.75, with a group average of 8.70, while the group means of the assessments of individual creativity ranged from 5.60 to 9.17, with a group average of 8.02. The results indicate that participants assess the methodology and their contributions very positively.

Table 1. Evaluation made by participants (managers in industry, pilot study)

1. It is not easy to find the time to participate in this kind of meeting	7.7
2. It has been easy to understand how to work in the group	7.1
3. The work in the group has not been too strongly moderated	7.6
4. It has been easy to make oneself heard in the group	9.4
5. The group has been engaged in its task	9.2
6. The group has been creative	9.0
7. I have been engaged in the group	8.7
8. I have been creative in the group	8.4
9. I have participated in an interesting exchange of ideas and experiences	8.7
10. It was worth the time to participate	8.7
11. The group has contributed important ideas to Sif	7.7

A Model for Group Creativity

Individual traits, behaviour and backgrounds have been in focus in the majority of creativity studies (Williams & Yang, 1999). In this study, a basic creativity model (Figure 1) has been developed from Amabile's (1996) components of creative performance. Her basic model has been modified in order to include contributions from focus group theory, the group creativity literature and the creative climate model, developed by Ekvall (1996). The notions derived from the literature have then been adapted to the DDG setting, whereupon the model has been developed. The purpose of the model is to exhibit and operationalize factors that need to be considered in the design dialogue context. The creativity components in the model will be discussed, developed and refined below.

Domain-relevant Skills

The role of domain-relevant skills in the production of creative work has received scant attention from researchers, but there is some evidence that exposure to a wide array of information in a domain can enhance creativity (Amabile, 1996). Special domain-relevant talent, which has been discussed by Amabile as an outstanding level of skills, shows resemblance to domain-relevant expertise. In the DDG setting, the moderator may be an expert on the issues to discuss, an expertise perhaps also shared by some participants. However, it can be debated whether expertise enhances creativity. Recent research has shown that experts may contribute fewer original ideas than average users (Magnusson, 2003).

Creativity-related Processes

The focus group literature and research related to brainstorming methodologies discuss the matter of group size. Research has shown that groups consisting of eight people produced more ideas than groups consisting of four people, but that smaller groups generated more ideas per participant (Fern, 1982). Comparisons on brainstorming methodology used by individuals and by groups have shown that individual performances may be more productive than group performances (Rickards, 1999). Other factors related to group composition refer to the familiarity between the participants – with one suggestion being that in the ideal situation, none of the participants know each other – and the homogeneity of ages and sex (Greenbaum, 1998, 2000).

Group creativity is related to the design of the group sessions, and in the DDG case, to the skills and actions taken by the moderator. In the DDG setting, work procedures are developed before each set of group sessions. Creativity is enhanced by a cognitive style characterized by a facility in understanding complexities and an ability to break sets during problem solving (Amabile, 1996). A DDG typically consists of people with different individual cognitive styles. The challenge is to create a form of interaction between the participants, thereby enhancing creativity through the mixture of cognitive styles (Paulus, 2000). Focus group theory suggests that the interaction in focus groups is less artificial than in more elaborate experimental situations. Group interviews are often considered to be enjoyable and interesting – the participants share experiences (Hylander, 2001). The group enables the individuals to open up (Kreuger, 1994). Attitudes are created in inter-

<p>1. Domain-relevant skills Includes:</p> <ul style="list-style-type: none"> • knowledge about the domain • requisite technical skills • special domain-relevant 'talent' or expertise <p>Depends on:</p> <ul style="list-style-type: none"> • the participants • the moderator 	<p>2. Creativity-relevant processes Includes:</p> <ul style="list-style-type: none"> • appropriate cognitive style • implicit or explicit knowledge of heuristics for generating novel ideas • conducive work style <p>Depends on:</p> <ul style="list-style-type: none"> • group composition • work procedures • the moderator 	<p>3. Task motivation Includes:</p> <ul style="list-style-type: none"> • attitudes towards the task • perceptions of one's own motivation for undertaking the task <p>Depends on:</p> <ul style="list-style-type: none"> • intrinsic motivation toward the task • abilities to control extrinsic motivation factors • the creative climate
---	---	---

Figure 1. Creative Components in a Design Dialogue Group Context: a Basic Model

action with others, thus the focus group method becomes isomorphic with natural attitude creation processes. Moreover, thoughts and feelings may be easier to describe and express after listening to others (Morgan, 1997). Theories of group creativity express similar experiences. Utterances of members may contain task-related stimuli that elicit new ideas from other members (Pinsonneault et al., 1999). Members can learn from and imitate best performers, hence increasing group productivity (Pinsonneault et al., 1999). Working in groups stimulates individuals to perform better (Pinsonneault et al., 1999). Novel associations may be created through the mutual stimulation of associations, increasing the chances that one will come across ideas or categories one would not have thought of in a solitary session (Paulus, 2000).

Knowledge and the use of heuristics is another important creativity-relevant component (Amabile, 1996, p. 89). A heuristic can be defined as 'any principle or device that contributes to a reduction in the average search to solution' (Newell, Shaw and Simon, 1962, p. 78). The use of heuristics/methods enabling creative performance may be explicit (the overt application of a specific method) or implicit (embedded in the moderating activities). Brainstorming techniques (Osborn, 1963) and other specific techniques aiming at enhancing creativity (see de Bono, 1992) may be examples of usable heuristics as well as more general problem-solving methodologies, such as SWOT-analyses.

A work style conducive to creative production has several features, such as an ability to concentrate effort and attention (Amabile, 1996; Campbell, 1960; Hogarth, 1980; Prentky, 1980), an ability to abandon unproductive search strategies and temporarily put aside stubborn problems (Simon, 1966), a persistence in the face of difficulty (Roe, 1953; Walberg, 1971), and a high energy level, a willingness to work hard and an overall high level of productivity (Amabile, 1996; Bergman, 1979; Bloom, 1956; Davis & Rimm, 1977; Simonton 1980; Wallach & Kogan, 1965).

So far, we have not discussed difficulties related to group creativity. However, there are several factors related to group interaction and work style that may be detrimental to creativity, such as evaluation apprehension, free riding/social loafing, production blocking, compliance and pressure for cognitive uniformity/conformity. Evaluation apprehension relates to the risk that productivity is impaired when members fear expressing ideas because of potential retaliation (Amabile, 1996; Paulus, 2000; Pinsonneault et al., 1999). Free-riding refers to the motivated, intentional with-

drawal of efforts. Members might limit their efforts and contributions by relying on others to accomplish the task because of: (1) perceived dispensability of one's effort; (2) diffused responsibility or (3) social and cognitive loafing, i.e. to be less motivated when individual contributions are combined as a group product (Paulus, 2000; Pinsonneault et al., 1999). Production blocking occurs in groups as only one can talk at a time, and ideas may be forgotten while waiting for the moment to express them (Paulus, 2000). Being unable to express ideas as they occur impairs productivity because ideas become irrelevant, people forget their ideas and people rehearse ideas to avoid forgetting ideas, which may prevent them from generating new ideas (Pinsonneault et al., 1999). Compliance occurs when participants give the answers the moderator is assumed to want (Albrecht, Johnsson and Walther, 1993; Kelman, 1961). Lastly, pressure for cognitive uniformity/conformity indicates that members may feel pressure to remain within group or social norms (Pinsonneault et al., 1999).

Task Motivation

Motivational variables in creativity have been given some attention by theorists. Intrinsic motivation arises from the individual's positive reaction to qualities of the task itself: interest, involvement, curiosity, satisfaction, and positive challenge (Amabile, 1996). A person is said to be intrinsically motivated to engage in an activity if that person views such engagement as an end in itself and not as a means to some extrinsic goals (deCharms, 1968; Deci, 1975; Lepper & Greene, 1978). Extrinsic motivation arises from sources outside the task itself: evaluation, contracted-for rewards, external directives etc. (Amabile, 1996). The importance of intrinsic motivation and a freedom from extrinsic constraints has been expressed by theorists working within philosophy, humanistic psychology and social psychology (Amabile, 1996; Crutchfield, 1962; Koestler, 1964; Rogers, 1954).

Amabile (1996, p. 119) has formulated 'The Intrinsic Motivation Principle of Creativity': *Intrinsic motivation is conducive to creativity; controlling extrinsic motivation is detrimental to creativity, but informational or enabling extrinsic motivation can be conducive, particularly if initial levels of intrinsic motivation are high. The mechanisms of positive extrinsic factors have thus been described as extrinsics in service of intrinsics and the motivation-work cycle match* (Amabile, 1996, p. 118). *Extrinsics in service of intrinsics* are defined as extrinsic factors that

support one's sense of competence or enable deeper involvement with the task, without undermining one's sense of self-determination. *The motivation-work cycle match* notion suggests that extrinsic motivation may work in synergy with intrinsic motivation during those specific phases in the creative process, where the novelty of the outcome is of less importance. Thus, successful problem identification and response generation phases may require intrinsic motivation that is unencumbered by significant extrinsic motivation. Amabile has also identified general social-environmental influences on creativity. Positive influences that are likely to have a direct impact on intrinsic motivation are autonomy/sense of control, importance/urgency in one's work, optimal challenge and task matched to interest. The other positive influences that are likely to serve as synergistic extrinsic motivators are sufficient resources, recognition/reward that confirms competence, reward that enables intrinsically interesting work and sufficient task structure to support competent performance. Negative influences emanate from threatening critical evaluation connoting incompetence, expectation of critical evaluation, surveillance, contracted-for reward-connoting, restricted choice/constraint control, arbitrary/unrealistic deadlines and competition with co-workers.

Dimensions related to organizational climate for creativity and innovation, as developed by Ekvall (1996), imply further factors to be explored. He has found ten dimensions, which will be used and discussed in the next section: challenge, freedom, idea support, trust/openness, dynamism/liveliness, playfulness/humour, debates, conflicts, risk-taking and idea time.

The Developed Creativity Model

In the section above, the concepts of the earlier exposed basic model for group creativity in the DDG context were further developed. The discussion is summarized in Figure 2.

Designing for Group Creativity – a Matter of Balance and Control

Empirical data and theory indicate that creative actions and results are to a high extent dependent on process design and control. Experiences from DDG sessions have indicated the importance of design features such as careful recruitment of participants, preparation of the moderator and design of work procedures while shortcomings related to

recruitment errors, insufficiently prepared moderators or poorly designed work procedures have resulted in less successful group performances. In this section, the creativity-related factors in the model will be discussed in the DDG context. DDG experiences will hence be used in order to propose specific design principles.

Organizing Domain-related Skills

During the recruitment process, the selection of participants with domain-related skills is facilitated by the potential participants since they must confirm that they belong to the targeted group (e.g. managers). Nevertheless, in a typical dialogue design group, the participants differ strongly along several dimensions, such as experience and industry/sector background. Thus, it is important that there is a balance between the diversity among the participants and the task to be executed. Task design and group design can thus not be executed separately.

There is strong evidence that domain-relevant skills are essential while highly specific expertise may not always be required. The recruitment model used for the DDGs has resulted in groups where few highly specified experts at the group task have been identified, which may be due to the relatively wide-ranging group tasks.

Opportunities for selecting moderators with domain-relevant skills are more evident. Internally recruited moderators have the advantage of familiarity with the domain. Another advantage is embedded in his or her relationship with the participants since it is more likely that an internal moderator will be seen as genuinely knowledgeable and interested in the issues discussed.

Two kinds of moderators have been used: those who have been familiar with the task and those who are experts. Even though no specific assessment has been made, it seems that moderators who are experts at the task may have a small advantage. This advantage may be explained as being related to a better ability to explain the task to the participants and to delve into the most interesting issues during the group sessions.

Arising from theoretical considerations and our experience, the following design principles are proposed:

- A1 If potential participants are given sufficient target group and task information, their pre-assessment of their own domain-relevant skills will contribute to the selection of individuals with such skills.

<p>1. Domain-relevant skills Includes:</p> <ul style="list-style-type: none"> • knowledge about the domain • requisite technical skills • special domain-relevant 'talent' or expertise <p>Depends on:</p> <ul style="list-style-type: none"> • the participants and their level of expertise • the moderator and his or her level of expertise 	<p>2. Creativity-relevant processes Includes:</p> <ul style="list-style-type: none"> • appropriate cognitive style • implicit or explicit knowledge of heuristics for generating novel ideas • conducive work style <p>Depends on:</p> <ul style="list-style-type: none"> • group composition • size • sex and age • work procedures • conduciveness to appropriate cognitive and work styles • use of heuristics • the moderator • conduciveness to appropriate cognitive and work styles • knowledge of heuristics 	<p>3. Task motivation Includes:</p> <ul style="list-style-type: none"> • attitudes towards the task • perceptions of one's own motivation for undertaking the task <p>Depends on:</p> <ul style="list-style-type: none"> • intrinsic motivation toward the task • interest, involvement, curiosity, satisfaction and positive nature of challenge • abilities to control extrinsic motivation factors • possible enabling factors: sufficient resources, recognition/reward that confirms competence, reward that enables intrinsically interesting work and sufficient task structure to support competent performance • negative factors: threatening critical evaluation connoting incompetence, expectation of critical evaluation, surveillance, contracted-for reward-connoting, restricted choice/constraint control, arbitrary/unrealistic deadlines and competition with co-workers • the creative climate • the degree of challenge, freedom, idea support, trust/openness, dynamism/liveliness, playfulness/humour, debates, conflict, risk-taking and idea time
--	--	--

Figure 2. Creative Components in a Design Dialogue Group Context: an Extended Model

- A2 Participants with high levels of domain-relevant skills (experts) may be detrimental to creativity since they tend to produce ideas of less originality. Rather, their ideas may be easier to use in the development of new activities, services and products.
- A3 Internally recruited moderators have an advantage in comparison with external consultants as they are more familiar with the domain and are perceived by the participants to be familiar with and engaged in the task.
- A4 Internal moderators, who are experts at the task, may have an advantage in the interaction with participants and in terms of focusing discussions on important issues.

Organizing Creativity-related Processes

The creativity-related skills of the participants cannot be controlled in advance of the DDG setting. Thus, the usage of these skills is a matter of how the creativity-related processes are designed and controlled. In the model, this depends on three factors: (1) group composition, (2) the design of the work procedures for the group session, and (3) the skills obtained by the moderator. The first specific design factor is related to group size and composition. In the Sif case, the DDG size has varied from three to nine people. No specific differences in the participants' assessment of the group sessions could be related to group size. The nature of the group tasks has not called for homogenous groups related to age or sex. On the contrary, the recruitment has aimed at

securing an equal participation of women and men in the groups. Another design factor is related to the relations between group members. In general the participants have either not known each other in advance or have they were not colleagues, but in a few cases some of the participants were colleagues – in one case all of them were colleagues. We have not observed inferior results from these groups consisting of colleagues, but the data are not sufficient for drawing any conclusions. However, we feel that the very open-minded reflections on personal issues in groups consisting of managers are unlikely to have taken place if the managers had been colleagues.

In brief, the design of work procedures is always carried out by a group consisting of the project manager for the project in which the results will be used (or the project group), at least one experienced moderator, other moderators who are going to participate and a DDG administrator. New moderators are carefully selected by the project manager and the experienced moderator. Although the selection criteria have never been clearly stated, open-mindedness and a conduciveness towards inquiry rather than advocacy (Argyris, Putnam and McLain Smith, 1995) are important individual traits. New moderators are given information about the method and they are obliged to follow at least one DDG session before they act as moderators. In general, a set of groups (4–12) is conducted within a project. The first group is moderated by an experienced moderator. If necessary, the work procedures are redesigned after the first session and thereafter continuously between the group sessions.

In DDG settings, an appropriate cognitive style (Amabile, 1996) has an impact on task motivation and results. The specific challenge lies in the creation of cognitive stimulation (Paulus, 2000) and synergy through group interaction. Thus, the positive properties of this form of group interactions, which are related to the sharing of experiences in an interesting and enjoyable manner, are used (Hylander, 2001). The group enables people to open up (Kreuger, 1994) as attitudes and ideas are created in interaction with others. Experiences and ideas are contributed by individual participants or by smaller groups and then discussed in the group as a whole.

In the work procedures developed in advance, different kinds of creativity-related heuristics are important elements. As discussed later, typical work procedures include a mixture of individual assignments and group exercises. Methodologies such as SWOT-analyses (Strengths, Weaknesses, Opportunities and Threats) and the grouping

of experiences and ideas into families/groups are regularly used.

The work procedures are designed in order to induce a work style conducive to creative production in the DDGs. This means that problems related to ideas created are not discussed, because idea evaluation is not conducted during the sessions. Each individual assignment or group exercise is strictly limited in time: generally five to fifteen minutes are consumed per assignment/exercise. This, in combination with the division of tasks into sub-tasks and clearly formulated rules for presentation of results, enhances the opportunities for the creation and maintenance of a high energy level and a high level of productivity. Another important moderator role is to enhance productivity through appreciative behaviour towards the participants, expressing an interest in the experiences and ideas they bring into the discussion.

However, creativity may be hampered by factors related to group interaction and work style, and these factors need to be controlled. Threatening factors mentioned in the model discussion included evaluation apprehension, free riding/social loafing, production blocking and groupthink. It should be made clear to the participants that their ideas will not be evaluated during the session and that they are participating anonymously – the experiences expressed and ideas created will not be related to them as individuals or to a specific DDG during the evaluation and idea-refinement processes following the group sessions. Therefore, evaluation apprehension does not seem to be a major obstacle. Free-riding or social loafing may occur during the sessions. The moderator has an important role in listening to all participants and in asking questions to the quieter participants in order to make them active. It should be clearly stated at the beginning that the group effort as well as the individual experiences and ideas is important. The individual responsibility is evident during the individual assignments. Taken together, free-riding is handled, but may still be a problem. Production blocking could be a major problem in group processes. However, the mix between individual assignments and group exercises makes the problem less evident than if the whole sessions were organized on a group basis. Groupthink may be addressed through challenging questions from the moderator, but it may still occur as a problem. Generally, several DDGs are organized around a specific theme. Thus, the risk of overall results being blurred by groupthink is reduced.

Thus, arising from theoretical considerations and our experience, the following design principles are proposed:

- B1 The mixture of individual assignments and group exercises enhances participants' involvement and results in a broader description of experiences as well as in more ideas than if individual assignments are not used.
- B2 Evaluation apprehensions may be controlled when guarantees are given that the results will not be traced to individuals or to specific groups.
- B3 Group productivity tends to be high when tasks are divided into specific sub-tasks which are dealt with under strict time limits and result-presentation rules are clearly stated.
- B4 The moderator's ability to engage all participants is a critical factor in the DDG setting.

Organizing for Task Motivation

Three notions related to task motivation have been used in the theory section: intrinsic motivation, extrinsic motivation and climate. Intrinsic motivation relates to the individuals' reaction to qualities of the task itself: interest, involvement, curiosity, satisfaction and positive challenge (Amabile, 1996). Extrinsic motivation originates from sources outside the task itself, while climate factors may affect both intrinsic and extrinsic motivation.

The propensity for high intrinsic motivation among the participants in DDG is relatively high. In most cases, the participants are members of the organization, paying a monthly fee and at least occasionally using services offered. People who are not initially interested in the task do not participate. The method aims at involving participants on the basis of their own experiences and wishes. As the task is not precisely specified during the recruitment process, participants tend to be curious in relation both to the task and the group process itself. The moderator initially expresses the task in order to present positive challenges to the participants. In most cases, the task and the division into sub-tasks, which needs to be conducted in only a few minutes, keep the levels of energy and interest high. However, the time limits may put too great a pressure on participants, thus reducing their intrinsic motivation. This and other threatening factors will be dealt with later in this section.

The enabling climate factors found by Ekvall (1996) are related to both intrinsic and extrinsic motivation. A motivating culture provides *challenge*. Participants in DDGs are committed and the goals for the session are known and accepted. In most cases, everyone feels

that his or her contributions are important. *Freedom* is in many ways limited for the participants in DDGs. However, no one is forced to participate, and there is a freedom to express attitudes and ideas. The moderator has an important role related to *idea support*. Novel ideas and thoughts are openly accepted since the creation of these is the major purpose of the sessions.

It can at first be perceived as difficult to establish *trust and security* in a group where the participants do not know each other. The experience from DDG sessions is the opposite, which may be explained by the fact that the participants are not dependent on other participants or on the group results. This enables the creation of a common sense of trust and security. Obviously, the moderator is important, because his or her presence is a critical factor in this respect. *Dynamism and liveliness* indicate that new issues and methods are continuously introduced. This is definitely the case during the DDG sessions. The atmosphere during the sessions is, in spite of time pressures, designed to be relaxed, which opens up possibilities for *playfulness and humour*. There are, however, big differences between different groups in this respect and between moderators. *Debates* are not equally lively in all groups. A specific problem has been identified in large groups (seven people or more). On the one hand, individual assignments are very important in these groups in order to let everyone have his or her say. On the other hand, the exposition of results from many participants tends to reduce the available time for debate and dialogue. *Risk taking* may in this setting refer to one's ability to step outside the limits set by the work procedures decided upon. It may be the case that the moderators have been too rigid in not letting interesting discussions continue. Lastly, the DDG method is problematic considering *idea time*. The time format is limited, often to two hours and attempts to collect participants' reflections after the sessions have not been successful so far. From this brief discussion concerning enabling climate factors in the DDG setting, an important experience is related to the methodology's ability to create trust and security among people who do not know each other.

Other useful positive influences that are not covered by Ekvall have been derived from Amabile's (1996) general socio-environmental influences on creativity. One factor is *sufficient resources* in cases where the DDG participants may meet problems due to lack of time, the absence of tools and insufficient background information. *Recognition that confirms competence* is continuously given by the moderator,

while *rewards confirming competence and enabling intrinsically interesting work* are lacking – a small gift is given to everyone after the session, but this has not been known by the participants in advance. As discussed above the sessions are organized in order to provide a *sufficient task structure to support competent performance*.

Among factors having a negative impact on creativity, Ekvall (1996) refers to *conflict*. So far, this has seldom shown to be a problem in DDGs. Amabile (1996) discusses threats related to *expectations of critical evaluation*. As shown above, this is not problematic in the DDG setting either. *Surveillance* could be threatening creativity, and the presence of a moderator – and people following the session on a TV monitor – could be a problem. When the moderator leaves the room during group exercises, discussions often tend to be more engaged. Participants are not *contracted for a reward*, which could have been problematic. Certainly, there are problems related to *restricted choice/constraint control* and *unrealistic deadlines*. *Competition with co-workers* may also be a problem because the time for expressing ideas and opinions is limited.

Thus, arising from theoretical considerations and our experience, the following design principles are proposed:

- C1 Voluntary participation enhances task motivation.
- C2 Participants who are members of the organization and thus having a relationship with the session organizer are more task-motivated than non-members.
- C3 A DDG climate characterized by trust and security is more likely to be established if participants have no former relations with each other.

Conclusions and Practical Implications

Based on theoretical studies and experiences from DDGs, a number of design principles have been proposed in three areas: domain-relevant skills, creativity-related processes and task motivation. These design principles include propositions concerning recruitment of participants, group characteristics and group processes.

The aim of this paper has not been to propose a comprehensive list of design principles. Many more principles could be formulated and the proposed design principles may be developed and refined. Through additional research and testing of the principles, their scope and limitations could be explored and

expressed further. Findings up to this point indicate that the issue of organizational learning and action-taking based on learning from group participants may be even more important than the issue of enhancing group creativity, at least in the organizational context studied. Hence, a study of organizational learning is in progress.

A careful design of the group creativity process increases the propensity for success since measures in order to enhance creative behaviours and to avoid pitfalls can be planned and/or be taken by a group moderator.

The main practical implication is that organizations involved in a high level of market interaction could successfully organize customer/user/member involvement in developmental processes on their own. This may be an opportunity for organizations with long-term relationships with their target groups, because it is likely that existing relations enhance performance in the processes where involvement takes place. Moreover, the process itself enhances the relationships between the organization and the participants. Below is some brief advice to those who would like to experiment with this:

- Tell the potential participant what you want, and he/she will then know if he/she can contribute.
- Try to assemble groups in which the participants do not know each other in advance.
- Do not only use participants who are experts.
- Try to involve volunteers and members/users/clients who have close relationships with you since these individuals are generally more task-motivated.
- Use your own moderators.
- Mix individual assignments with group exercises and divide tasks into sub-tasks.
- Promise that results will not be traced to individuals or specific groups.
- Enable all participants to talk.

The scope of this study has been on involving users in DDGs. However, the proposed design principles may have potential in other configurations, such as on the employee-organization level. When carefully applied, the proposed design principles may well result in group creativity in many different settings. The other major strength of the methodology – that it tends to create involved and satisfied participants – is also of interest.

References

- Albrecht, T.L., Johnsson, M.G. and Walther, J.B. (1993) Understanding communication processes

- in focus groups. In Morgan, D.L. (ed.), *Successful focus groups. Advancing the state of the art*. Sage Publications, Newbury Park, pp. 51–64.
- Amabile, T.M. (1996) *Creativity in Context*. Westview Press, Boulder.
- Argyris, C., Putnam, R. and McLain Smith, D. (1995) *Action Science*. Jossey-Bass, San Francisco.
- Bergman, J. (1979) Energy levels: An important factor in identifying and facilitating the development of giftedness in young children. *Creative Child & Adult Quarterly*, 4, 181–8.
- Björkman, H. (2003) Service Innovation – A Collaborative Approach. In Adler, N., Shani, A. and Styhre, A. (eds.), *Collaborative research in organizations*. Sage, Thousand Oaks CA.
- Bloom, B.S. (1956) Report on creativity research at the University of Chicago. In Taylor, C. (ed.), *The 1955 University of Utah research conference on the identification of creative scientific talent*. University of Utah Press, Salt Lake City.
- Bormann, E.G. (1972) Fantasy and rhetorical vision: The rhetorical criticism of Social reality. *Quarterly Journal of Speech*, 68, 396–407.
- Campbell, D. (1960) Blind variation and selective retention in creative thought as in other knowledge processes. *Psychological Review*, 67, 380–400.
- Crutchfield, R. (1962) Conformity and creative thinking. In H. Gruber, G. Terrell and M. Wertheimer (eds.), *Contemporary approaches to creative thinking*. Atherton Press, New York.
- Davis, G.A. and Rimm, S. (1977) Characteristics of creativity gifted children. *Gifted Child Quarterly*, 21, 546–51.
- de Bono, E. (1992) *Serious Creativity*. Harper Business, New York/London.
- deCharms, R. (1968) *Personal causation*. Academic Press, New York.
- Deci, E. (1975) *Intrinsic motivation*. Plenum Press, New York.
- Edmunds, H. (1999) *The Focus Group Research Handbook*. American Marketing Association/NTC Business Books, Lincolnwood IL.
- Ekvall, G. (1996) Organizational Climate for Creativity and Innovation. *European Journal of Work and Organizational Psychology*, 5(1), 105–23.
- Fern, E.F. (1982) The use of focus groups for idea generation: The effects of group size, acquaintanceship, and moderator on response quantity and quality. *Journal of Marketing Research*, 10, 1–13.
- Frey, J.H. and Fontana, A. (1993) The group interview in social research. In Morgan, D.L. (ed.) (1993). *Successful focus groups. Advancing the state of the art*. Sage, Newbury Park CA, pp. 20–34.
- Greenbaum, T.L. (1998) *The handbook for focus group research*, 2nd edition. Sage, Thousand Oaks CA.
- Greenbaum, T.L. (2000) *Moderating focus groups. A practical guide for group facilitation*. Sage, Thousand Oaks CA.
- Guilford, J.P. (1967) *The nature of human intelligence*. McGraw-Hill, New York.
- Hogarth, R. (1980) *Judgement and choice*. Wiley, Chichester.
- Hylander, I. (2001) *Focus groups – A research method for qualitative data collection*, 2nd edition, FOG-report no 42. Department of Education and Psychology, Linköping University, Linköping.
- Kelman, H. (1961) Processes of opinion change. *Public Opinion Quarterly*, 25, 57–78.
- Koestler, A. (1964) *The act of creation*. Dell, New York.
- Kreuger, R.A. (1994) *Focus groups: A practical guide for applied research*, 2nd edition. Sage, Thousand Oaks CA.
- Lepper, M. and Greene, D. (1978) Overjustification research and beyond: Toward a means-end analysis of intrinsic and extrinsic motivation. In Lepper M. and Greene D. (eds.), *The hidden costs of reward*. Lawrence Erlbaum Associates, Hillsdale NJ.
- Magnusson, P.M. (2003) *Customer-Oriented Product Development. Experiments Involving Users in Service Innovation*. Dissertation for the Degree of Ph.D. in Business Administration, Stockholm School of Economics, Stockholm.
- Merton, R.K., Fiske, M. and Kendall, P. (1990) *The Focused Interview. A manual of Problems and Procedures*, 2nd edition. The Free Press, New York.
- Millward, L. (1995) Focus Groups. In Breakwell, G.M., Hammond, S. and Fife-Shaw, C. (eds.), *Research methods in psychology*. Sage, London, pp. 274–92.
- Morgan, D.L. (1997) *Focus groups as qualitative research*. Qualitative Research Methods Series, 16, 2nd edition. Sage, Thousand Oaks CA.
- Newell, A., Shaw, J. and Simon, H. (1962) The processes of creative thinking. In Gruber, H., Terell, G. and Wertheimer, M. (eds.), *Contemporary approaches to creative thinking*. Atherton Press, New York.
- Osborn, A.F. (1963) *Applied imagination*, 2nd edition. Scribner, New York.
- Paulus, P.B. (2000) Groups, Teams, and Creativity: The Creative Potential of Idea-generating Groups. *Applied Psychology: An International Review*, 49(2), 237–62.
- Pinsonneault, A., Barki, H., Gallupe, R.B. and Hoppen, N. (1999) Electronic Brainstorming: The Illusion of Productivity. *Information Systems Research*, 10(2), 110–33.
- Prentky, R.A. (1980) *Creativity and psychopathology*. Praeger, New York.
- Rickards, T. (1999). Brainstorming. In Runco, M.A. and Pritzker, S.R. (eds.), *Encyclopedia of Creativity, Vol 1*. Academic Press, London, pp. 219–27.
- Roe, A.A. (1953) A psychological study of eminent psychologists and anthropologists and a comparison with biological and physical scientists. *Psychological Monographs*, 76 (2, Whole No. 352).
- Rogers, C. (1954) Towards a theory of creativity. *ETC: A Review of General Semantics*, 11, 249–60.
- Simon, H. (1966) Scientific discovery and the psychology of problem solving. In *Mind and cosmos: Essays in contemporary science and philosophy*. University of Pittsburgh Press, Pittsburgh.
- Simonton, D.K. (1980). Thematic fame, melodic originality, and musical Zeitgeist: A biographical and transhistorical content analysis. *Journal of Personality*, 48, 206–19.
- Sternberg, R.J. and Lubart, T.I. (1999) The Concept of Creativity: Prospects and Paradigms. In

- Sternberg, R.J. (ed.) *Handbook of Creativity*. Cambridge University Press, Cambridge.
- Walberg, H.J. (1971) Varieties in adolescent creativity and the high school environment. *Exceptional Children*, 38, 111-16.
- Wallach, M. and Kogan, N. (1965) *Models of thinking in young children*. Holt, Rinehart & Winston, New York.
- Williams, W.W. and Yang, L.T. (1999) Organizational Creativity. In Sternberg R.J. (ed.), *Handbook of Creativity*. Cambridge University Press, Cambridge.

Hans Björkman is an Executive PhD Candidate at the Fenix Program at Stockholm School of Economics and a service developer at Sif, Sweden. His main research activities concern user involvement in new service development.
E-mail: hans.bjorkman@sif.se