

COMMUNICATION AS A MECHANISM FOR CULTURE INTEGRATION

Tomas Backström, Tom Hagström and Susanna Göransson
Mälardalen University, School of Innovation, Design and Engineering,
P.O. Box 325, SE-63105 Eskilstuna, Sweden

Abstract

Autonomy of employees is one way to ensure the flexibility, adaptability and innovation competence needed in organisations working on a global market. This has to be dynamically balanced on a system level by integration of the employees into the organisation. Formulation and communication of an organisational culture is one way to integrate employees to an understanding of the work that increases the chances of co-ordinated behaviour towards the goal of the organisation.

The aim of this article is to increase the knowledge about processes leading to integration of employees into the organizational culture. The hypothesis is that culture emerges in the interaction between members of a social group. Thus, the article is studying the importance of communication, the research questions are: What makes the culture of a work group similar to the organizational culture?, How is a work group culture constructed? and How is it possible that some members of the workgroup are integrated in the organizational culture while others are not?

Theories used are about culture as an organizing structure emerging in interaction between actors, about organizational culture as a way for management to exert control, and about social networks as a way to describe the interaction processes is.

The empirical data comes from a merchant bank in Sweden famous for: long term competitiveness, a decentralized organisation and the use of organizational culture. 105 respondents from ten work groups of this bank have answered questions about their communication and their integration into the organisational culture.

The results show that communication between members of a group is a mechanism behind the development of the sub-culture of the group and the integration of each individual member into this subculture. There seems to be a self-reinforcing spiral between collegial talk, especially about goals, plans and changes at the work place, and culture integration. To build a strong subculture it is important to have all members of a group included in this communication, since persons in the periphery of the talk pattern tends to be less integrated. The value system of the group's supervisor is strongly influencing the sub-culture of the work group. Thus, to hire supervisors with the correct values and giving resources to employees for communication is central for an organisation using organisational culture as a tool for control.

Keywords: Complex systems; autonomy; integration; culture; communication; organisational culture; decentralised organisation

Introduction

Working life has changed significantly in recent decades. The new is described with words such as information society, global marketplace, business networks and joint development, flat and lean organization, work without borders, and a skilled workforce who seek fulfilment. The new post-industrial work system is characterized by flexibility. The coordination between

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departments and people within the organization, and between the organization and its environment, are not pre-defined by the organizational structures in the same way as they are in the old industrial work system.

The mechanisms that stabilize the old industrial work system, based on centralization, standardization and specialization (Backström, Wilhelmson, Olsson, Åteg, & Åberg, Forthcoming), have decreased in strength and must be replaced with something else. We believe that this stability can be created by autonomous employees being integrated in the organizational culture. A new task for managers has emerged: the directing task (Backström, Döös, & Wilhelmson, 2006). The directing task involves providing pre-conditions and influencing both the interaction between individuals and the collective self-organization, which thus emerges (Åteg et al., 2009).

The post-industrial work system can be described as the industrial work system's antithesis. It is based in decentralization, pluralism, and generalization. The concept of decentralization points to a different role of organizational control: one that is not about controlling subordinates, but rather to provide directing preconditions for employee decisions and responsibility. The government of the employees in the old industrial work system are external to them, in the organization and the manager. However, in the post-industrial system, the government is within the employee him or herself and in organizing structures emerging in the interaction of work, like for example culture. This necessitates that the employee has the level of development, skills and information needed in order to act autonomously and simultaneously integrated (Hagström, Backström, & Göransson, 2009).

This article is using emergence (T O'Connor & H Y Wong, 2009; Sawyer, 2005) as the meta-theoretical concept to describe and understand reality. Employee autonomy and integration are two key conditions for emergence (Backström, 2009). Autonomy means that the employee can, knows, and wants to be autonomous (Backström et al., Forthcoming). Integration regards the co-worker, consciously or unconsciously, lending themselves to the structures that emerge and have emerged. Culture is one important such structure (ibid).

Aims and questions

Organizational culture is more and more used as a way to control work in organizations. Thus there is a need to understand how the culture of a work place emerges and how the cultural understanding of an employee may be formed. The aim of this article is to increase the knowledge about processes leading to integration of employees into the organizational culture as it is formulated and communicated by the top management of an organization. The hypothesis of this article is that culture emerges in the interaction between members of a social group. Thus, the article is studying the importance of communication for the integration of employees into the organization culture. We do this by answering three questions:

- What makes the culture of a work group similar to the organizational culture?
- How is a work group culture constructed?
- How is it possible that some members of the workgroup are integrated in the organizational culture while others are not?

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Theory

This article is based on three different theories: about culture as an organizing structure emerging in interaction between actors, about organizational culture as a way for management to exert control, and about social networks as a way to describe the interaction processes behind the infrastructure for communication of the organizational culture as well as the emergence of the local culture of a workplace.

Culture

The understanding of culture used in this article builds on culture psychology as it is described by Richard A Shweder (Shweder, 1990; Shweder & Sullivan, 1993). Culture is “those meanings, conceptions, and interpretive schemas that are activated, constructed, or brought on line through participation in normative social institutions and practices. ... (Culture) is a subset of possible or available meanings, which by virtue of enculturation ... has so given shape to the psychological processes of individuals in a society that those meanings have become, for those individuals, indistinguishable from experience itself” (Shweder & Sullivan, 1993) p 512). Two aspects of this understanding of culture will be further developed: The interdependence between the mind and the culture, and the emergent nature of culture.

One basic assumption in this understanding of culture is that we as humans have intentions as we try to understand the world and get recourse from it. The world is real, but what we are influenced by, pay attention to and talk about is dependent on desires, emotions, purposes and mental representations of the collective of people that we are part of. Objects and events of the intentional world are products of our own design. In a bank of today there exists “revenue”, and “customers”, and activities such as “taking loans” and “buying stocks” are performed. These things can in the intentional world of the bank be subject for rational and objective communication. But that was also true for objects such as “witches” and “demons” and activities as “witch hunting” and “exorcism” in the intentional world of Europe in the 16th century. Our meanings, conceptions, and interpretive schemas do not exist independent of our involvement in them and reactions to them. “The mind, according to cultural psychology, is content-driven, domain-specific, and constructively stimulus-bound; and cannot be extricated from the historically variable and cross-culturally-diverse intentional worlds in which it plays a coconstituting part.” (Shweder, 1990) p 13)

The relation between the mind and the culture may be illustrated metaphorically by the relation between the computer’s hard ware and soft ware. It is possible to only study the hard ware: the inherent central processing mechanism of a computer, similar to the way a traditional cognitive psychologist study the mind of a human. It is also possible to study the soft ware: procedures and languages, similar to the way a traditional anthropologist study culture. But the interdependence between them is essential for the function of the computer, as is the interdependence between mind and culture to understand human beings,

Culture is emerging in the interaction between members of a group. Emergence deals with the behaviour of a system with many actors (Timothy O'Connor & Hong Yu Wong, 2009; Sawyer, 2005). It is the mechanism behind self-organization: Through the interaction between actors, an organizing structure of the actors, like culture, may emerge. It includes a circular causality: The interaction of actors forms an organizing structure, and, at the same time, this structure organizes the interaction. And it includes two levels and their connection: a lower level, with the actors and their interaction, and a higher emergent level, the system of actors and its organization.

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Language is the most important mechanism used by the members in the interaction where culture emerges. As novices come to understand the norms, preferences and expectations relating language to the world, they also come to understand the cultural meanings (Ochs, 1990). There are thus close connections between language and culture. Both language and culture are collective representations including conceptualizations, bodies of knowledge, and structures of understanding. Language is a symbolic system that encodes the local culture. As language, a culture is always shared by a group of people or a society.

The emergence of culture may be illustrated metaphorically by the development of paths in the wilderness. Where the wilderness represent all possible meanings and the paths the subset of meanings used by the culture. Actors have already passed the wilderness with different intentions. Paths have emerged fitting to the intentions of these former wanderers and the reality of the landscape. These paths are recognized by and part of the nature for wanderers of today. It is easier to walk on a path, and you might follow it even if it is a bit beside your intentions. But when your intention differs a lot from former wanderers you might go in a new direction, and if this direction is used recurrently, a new path will develop, and the reality will change. And paths not suiting to modern intentions will not be used and thus be overgrown and disappear after a while, which also changes reality. “The life of intentional persons, responding to, and direction their action at, their own mental objects or representations, and undergoing transformation through participation in an evolving intentional world that is the product of the mental representations that make it up” (Shweder, 1990) p 22).

The traditional meaning of context is changed when using this understanding of culture. The context is not anymore an independent frame that surrounds the event being examined and providing resources for its appropriate interpretation. The context is shaped by our intentions. When studying context we have to (Duranti & Goodwin, 1992) p 3):

- Approach context from the perspective of an actor actively operating on the world.
- Tie the context to the activities that constitutes the culture of the participants.
- Recognize that participants are situated within multiple contexts which are capable of rapid and dynamic change.

To be a member of a group e.g., is not only to be surrounded and influenced by other people. It is to be engaged in a mutual interaction process where meaning is constructed, and, thus, where culture is emerging.

Organizational culture and management control

Culture is above defined in a way that is possible to use for collectives of people of different sizes. It is e.g. possible to talk about a national culture, a culture of an organization or a culture of a group. But for the concept “Organizational Culture” we use quite another definition. The Organizational Culture is the meanings, conceptions, and interpretive schemas that the managers of a company communicate to the employees, in a more or less conscious way. Some companies do not talk about their Organizational Culture at all, others have written documents about it, but do not really use it and still others use the Organizational Culture as an important mechanism for integration, co-ordination and control of the work force.

The Organizational Culture and the culture of an organization is normally not the same thing, as we define it here. It is only when the management of an organization fully succeeds to

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communicate the Organizational Culture and make it the true culture of the organization that they coincide. This is a powerful way for management to exercise control and different labels such as normative control, informal control or socio-ideological control have been used for it (Alvesson & Kärreman, 2004).

Management is intimately dependent upon context. There is a decisive difference between the industrial and post-industrial work system pertaining to dynamics, which makes socio-ideological control, e.g. through culture, an attractive solution in the post-industrial work system (Backström, Wilhelmson, Olsson, Åteg, & Åberg, In print). The industrial work system is characterized by stability, and it is enough for the manager to administrate this system to reach stability. The post-industrial work system is characterized by flexibility. The coordination between departments and people within the organization, and between the organization and its environment, are not pre-defined by the organizational structures in the same way as they are in the industrial work system. Hence, a new managerial task arises: providing conditions and influencing the emergence of coordination in tune with a changing environment.

Employee autonomy and integration are two key conditions for organizational fitness through emergence of coordination and innovation (Backström, 2009). Autonomy means that the employee can, knows, and wants to be autonomous. Integration regards the co-worker, consciously or unconsciously, lending themselves to organizing structures like culture, habitual action patterns and/or relations (Backström & Döös, 2008). A new managerial task arises: providing conditions and influencing the emergence of coordination and innovation in tune with a changing environment. We call this the directing managerial task (Backström et al., In print). This article investigates the emergence of culture, one way to stabilize a post-industrial work system.

Social networks

The culture of an organization is emerging in the interaction between members of the organization. Further, managers might exert control by influencing this process in a conscious way and e.g. communicating their pre-designed Organizational Culture into this interaction. Interaction and communication between members of the organization, through language use or by other means, are crucial for both emergence and socio-ideological control. Theories of social networks are tools for mapping of the interaction in e.g. an organization.

Some principals that distinguish the social networks perspective are (Wasserman & Faust, 1994):

- Actors and relational ties, defined by linkages among actors, are the fundamental components of networks.
- Actors and their actions are interdependent.
- Relational ties are channels for transfer or “flow” of resources.
- Network models conceptualize structures as lasting patterns of relations among actors.

Parts of the theories use statistical analysis to study the conditions for flow of e.g. disease or information through a group of people. A simple model is that the number of persons reached by the flow of e.g. an information, is proportional to the number of people having the information multiplied to the frequency of contacts within the population (Watts, 2004). This model might be made more realistic by also including different kinds of structural properties

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of the population, e.g.: who is the most important or central person in the network, does it exist sub-groups, or does the network have cutpoints where only one actor connects two subgroups.

The importance of the structure of the social network for the flow of knowledge in an organization is studied both on the level of the whole organization and on the level of the local networks of individuals (Ibarra, Kilduff, & Tsai, 2005). In this article we will focus on the local network of work groups. A common result in such studies is that some individuals are more central in the flow of information, and thus more important for its effectiveness (Allen & Cohen, 1969). Such central actor, who acts as an intermediate in the flow between the others, is sometimes called a broker.

Different structures of network is fitted for different tasks. The centralized or hierarchical network with one broker in the center intermediating information to the others in the periphery is effective for the flow of relatively simple information. But in other situations it is not effective e.g. when it comes to knowledge about a complicated reality including a lot of different variants (van Asseldonk & den Hartigh, 2008) and information of a more complicated nature, where there is a need for recurrent interactions before the information is actionable (Reagans & McEvily, 2003; Sorenson, Rivkin, & Fleming, 2006). A network naturally emerging under appropriate conditions during performance of the work tasks might be the best for the flow of complicated information as culture and competence in a modern organization (Backström & Döös, 2008; van Asseldonk & den Hartigh, 2008).

If most actors in a group have contacts with each other it is reasonable to expect that they have the same information. It is called a strong tie between two actors when they have ties to the same people, so information between them can take a lot of different ways (Granovetter, 1973). Weak ties or bridges, where the tie between two persons is the only connection between two sub-groups, may be important for creativity and development (Granovetter, 1983; Perry-Smith, 2006). But strong ties is probably more important for the emergence of culture.

In this article we use three network concepts: density of the network, individual centrality and centrality of the network. Below we will describe the general idea behind them, tell how they are calculated and give their values in two archetypical networks.

The density of a network is a measure of how many of all possible relational ties that is used. In a network with high density a lot of actors have direct contact with the other actors and the flow is high, in networks with low density most actors have few direct contacts with others and the flow is low. Density is calculated as the number of used ties divided by all possible ties.

The individual centrality is a measure of how central or important a person is in the network. A person with high centrality, a broker, has direct contact with more of the others than a person with low centrality, and is thus able to influence the flow more. We use Actor Closeness Centrality to measure this, which is the inverse sum of the distances from the actor to all other actors and the answer is given in percent, where 100 % is the highest possible centrality.

The centrality of the network is a measure of the overall structure of the network. In a network with high centrality, one or few actors are in the centre of the network influencing most of the flow, and the other actors are in the periphery with little influence of the flow. This network is

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of a hierarchical type. In a network with low centrality most actors have about the same influence of the flow, this network is more equal. We use group closeness centralization as the measure. The calculation of it is based on the sum of the differences in centrality between the actors of the network and the answer is given in percent, where 100 % is the highest possible centrality.

Method

The choice of study object, a merchant bank in Sweden was justified by the ambition to study an organization striving towards sustainability by combining competitiveness with e.g. competence development among its employees. Several methods have been used, e.g. observations, interviews and surveys in three research steps: 1) explorative observations and interviews of 65 employees in 12 work groups, constituting a base for 2), a survey directed to all employees in the organization in Sweden (N=5347, response rate 70%) that, in turn was the base for a 3) study more in depth of interaction patterns in 10 local work groups (109 employees). The bank has been highly competitive and a sweeping re-organization was carried out in the early 1970's by the then president (Wallander 2002). This move was based on a decentralization characterized by operative levels consisting of relatively small units (local branches) with quite a high level of decision-making possibilities as well as a corresponding humanistic view of man as proactive and meaning making.

Survey data in the second research step was also used to perform statistical cluster analyses of indices and variables measuring "attitude profiles" among work groups towards the company culture and its regular work activities. The three clusters of interest here were 1) "High culture integrated" (HCI) covering 165 work groups, totally 683 employees, 2) "Middle culture integrated" (MCI), covering 212 work groups, totally 1570 employees and 3) "Low culture integrated" (LCI) covering 85 work groups, totally 499 employees.

Data used in this article were collected in the third research step by visiting the selected work groups for one work day. All personnel at the workplace the day of the visit were given questionnaires in the morning which were collected at the end of the day. In a few cases questionnaires were also given to personnel on leave the actual day, these were sent by mail to the researchers later. Data from two types of questionnaire questions are used in this article: one about culture integration and

Questions about culture

The main criteria for defining culture integration in general were an index consisting of six items such as "I stand by and engage in the bank culture", "There is a special culture in this bank", "We uses 'Goals and Tools' (the booklet describing the organisational culture) a lot in our daily work". The questionnaire that included these questions were answered by 109 respondents.

Questions about communication

The questionnaire about communication included a pre-produced list (or rooster) with the names of all people included in the work group according to the supervisor. For each name there were a question with five sub-questions:

1. With which persons **within** your work group do you talk about:
 - a. Social chat.

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- b. Everyday routine questions concerning work.
- c. Solve problems related to work.
- d. Goals, planning, and changes.
- e. Strategy and long term planning for the bank.

The question was a matrix with colleagues as rows and different content of communication as columns. Each square in the matrix included five letters representing different frequencies of talk and the instruction was to:

Encircle one of the letters in each square below:

D=Daily V= Weekly M=Monthly Å=Yearly S=Seldom or never.

The number of respondents answering this question was 105 including the ten supervisors. Two person did only answer the first two sub-questions (table 1).

Table 1. Number of persons and number of supervisors among them included in the study of each different type of network.

Topic of the network	Social	Experience	Problem	Goal-plan	Strategy
Total number of informants	105	105	103	103	103
Number of supervisors	10	10	10	10	10

The answers were transferred into one matrix for each sub-question and work group. All rows and columns with personnel not answering the questionnaires were erased. Ideally this matrix should have been symmetric, since person A talk to person B just as often as person B talks to person A. But sometimes person A and B gave different answers in spite of that. We made the matrix symmetric by using mean values of the two answers. For the analyses made in this article the matrix has to be dichotomous. This means that frequencies of talk below a certain breakpoint value is given the value zero and understood as if there is no talk between these persons, while frequencies above the break point is given the value one and treated as existing talk. Different break points were used in different analyses, as is mentioned in the results. All this resulted in 50 squared, symmetric and dichotomous matrixes.

The matrixes were used to decide the density of talk in each group, the centrality of respectively talk pattern and to draw a graph of this pattern. Density is the percentage of all realized talk connection among all possible. Closeness centrality for an individual is the inverted sum of the geodesic distance to all others in the work group. Centrality for the group is a value going from zero if all members of the group has equal values on centrality, to one hundred if one person has maximum value on centrality an all others has minimum values. The software UCINET 6 (Borgatti, Everett och Freeman 2002) was used for data management and analyses.

The graphical representations of the network pattern represent each member of the group with a dot and draw a line between them if the talk to each other. The strength of the tie between two persons decides the distance between them in the graph, persons with strong ties are close to each other, while persons with weak ties are far from each other. The graphs are drawn by the software Netdraw (Borgatti, 2002).

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Results

10 work groups with a bit more than 100 persons were included in the study of social networks. All 10 supervisors answered the questions and are included (table 1). Depending on the topic of the talk between individuals, five different networks are constructed. Results on individual level will first be presented, and then results on work group level.

Results at individual level

Questions about different topics of talk was used to construct the different networks: Social small talk, Everyday experience talk, Problem solving talk, Talk about goals and plans of the workgroup, and Talk about the strategy of the company. This was meant to be a hierarchy of topics from simple topics to more advance. The general trend is that the correlation between being central in one network is higher to being central in the networks close to this one in the hierarchy, than to networks more distant in the hierarchy (table 2).

Table 2. Correlation between persons individual centrality in networks with different topics of talk.

****.** Correlation is significant at the 0.01 level (2-tailed),

***.** Correlation is significant at the 0.05 level (2-tailed).

	Social	Experience	Problem	Goal-plan	Strategy
Social	1	0,313**	0,404**	0,157	0,058
Experience	0,313**	1	0,616**	0,417**	0,023
Problem	0,404**	0,616**	1	0,524**	0,213*
Goal-plan	0,157	0,417**	0,524**	1	0,532**
Strategy	0,058	0,023	0,213*	0,532**	1

Individual centrality is measured as the inverted sum of the person's geodesic distance to all other persons in the network. High average score on individual centrality for all involved means that the people in the network are close to each other, i.e. more towards an extreme of "everyone speaks with everyone" where the average is 100. Members of work groups in the bank are most close to each other in the network with the topic problem solving (table 3).

The supervisors score of average individual centrality is higher than average for all in all, meaning that the average supervisor is more central in the networks than the average employee (table 3). This difference is increased for each network with more advanced topic of talk. In the Social small talk network the average supervisor is 1,3 more central than the average person, in the Strategy network the difference is 18,4.

Table 3. Average value of individual centrality in networks with different topic of the talk, for all persons included and for supervisors.

Topic of the network	Social	Experience	Problem	Goal-plan	Strategy
Average value of centrality	70,4	67,8	73,0	67,1	69,2
Average value of centrality for supervisors	71,7	72,0	79,8	81,3	87,6

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The focus of this article is on the importance of communication for the integration of people into the organization culture. There is a positive correlation between a person's individual centrality in a network and his or her culture integration (table 4). If one excludes the supervisors from the network, because he or she might have a special role in the diffusion of the organization culture, there is still a positive correlation. This correlation is statistically significant for the network were the topic of talk is about goals and plans of the workgroup.

Table 4. Correlation between a person's individual centrality in a network and his or her culture integration, for the networks with different topics and for all respectively supervisors excluded.

****.** Correlation is significant at the 0.01 level (2-tailed),

*****. Correlation is significant at the 0.05 level (2-tailed).

	All informants	Supervisors excluded
Social	0,082	0,119
Experience	0,189	0,204
Problem	0,151	0,145
Goal-plan	0,282**	0,241*
Strategy	0,251*	0,196

Results at workgroup level

The included workgroups were strategically chosen from five different clusters: High culture integration (HCI:1-3), Middle culture integration (MCI:1-2), Low Culture integration (LCI:1), Divergent culture integration with trustful climate (DTC:1-2), and Divergent culture integration with sense of negative control (DNC:1-2).

Density is a simple measure of a network, meaning the percentage of possible contacts that are realized. If you define a contact as "Talking to each other once a week or more often" the density varies between the extremes, i.e. from 0 to 100 percent, in the networks of different topics at the different work places (table 5). The density gets lower and lower going from the network with the topic "Social small talk" upwards in the topic hierarchy to the most advanced topic "Talk about the strategy of the company".

The gradient differs between workgroups. Two workgroups have a steep gradient going from 100 percent density in the Social network to 0 percent density in the Strategy network. Other groups have a less steep gradient, for three groups the difference in density between the Social and Strategic network is about 50 percent (MCI:2, LCI:1 and DNC:2).

There are few unambiguous tendencies in network density between workgroups from different clusters. The differences between workgroups from the same cluster are almost as big as the differences between workgroups from different clusters. The workgroups from the high culture integration (HCI) cluster though, have a rather high density on the three lower levels of the advanced topics hierarchy, but not on the two highest and thus also a higher gradient than average.

Table 5. Density for contacts between persons once a week or more often about different topics of talk, in the different workgroups.

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Workgroup	Social	Experience	Problem	Goal-plan	Strategy
HCI:1	92	58	36	14	8
HCI:2	97	86	78	8	0
HCI:3	97	97	81	14	0
MCI:1	100	89	75	4	0
MCI:2	51	16	12	8	1
LCI:1	62	33	31	15	8
DTC:1	84	71	56	7	0
DTC:2	69	35	33	5	4
DNC:1	100	68	55	5	0
DNC:2	40	33	27	7	0

The average density of the networks including “talk about goals and plans of the workgroup” and “talk about the strategy of the company” are both very low if you use once a week or more often as the breakpoint. The networks with simpler topics are all close to 50 percent or more but these two are below 10 percent (table 6). If we take the breakpoint once a month or more often the density of the goal and plan network increases to almost 50 percent while the strategy network continue to have close to 10 percent. First at the breakpoint once a year or more often the density of the strategy network increases to about 50 percent.

Table 6. Average density of the networks with different topics for different breakpoints: once a week or more often, once a month or more often and once a year or more often.

	Weekly	Monthly	Yearly
Social	79	94	98
Experience	59	78	91
Problem	48	75	88
Goal-plan	9	48	76
Strategy	2	11	52

Talking about “goals and plans of the workgroup” seems to be especially correlated to culture integration (table 4). The networks with this topic will thus be focused in this last part of the result presentation. We use the breakpoint “once a month or more often”, where the average density is close to 50 percent. The density is different in different workgroups, ranging between 13-75 percent (table 7). Work groups with high density in this network seem also to more often be culture integrated.

Group centrality is a measure of the structure of a network. It is a measure of the difference in centrality for different group members. If one group member is very central and others are more peripheral then group centrality is high, and if all has about the same individual centrality then the group centrality is low. All members of the network have to be connected, otherwise it is not possible to calculate group centrality. The breakpoint has thus been changed for half of the groups to more inclusive ones (“more often than once a year” (>year) respectively “once a year or more often” (\geq year), see table 7). Centrality varies between different workgroups, ranging between 17-79 percent (table 7). But there are no unambiguous tendencies when it comes to the connection between centrality and culture integration.

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Table 7. The network for talking about goals and plans of the workgroup in different workgroups: Density for talking once a month or more often, group centrality at given breakpoint and average culture integration of the group members.

Workgroup	Office or Department	N	Density	Centrality	Centrality's breakpoint	Culture integration
HCI:1	CD	9	75	47	≥ month	6,2
HCI:2	BO	9	58	41	≥ month	6,1
HCI:3	BO	9	75	45	≥ month	6,2
MCI:1	BO	8	32	50	> year	5,7
MCI:2	CD	17	13	51	≥ year	5,8
LCI:1	CD	13	42	44	≥ month	4,6
DTC:1	BO	10	73	17	≥ year	6,1
DTC:2	CD	11	33	46	≥ month	5,7
DNC:1	BO	12	29	76	> year	5,7
DNC:2	CD	6	47	79	≥ year	6,1

Average values of the network measures in table 7 for different kinds of workgroups are given in table 8. Culture integration values are as expected; Workgroups coming from the high, medium and low culture integration cluster have values on culture integration according to their clusters (table 8). The workgroups from the two with divergent culture integration are in the middle. Bank offices are a bit more integrated than central departments. The workgroups from the high culture integration cluster have high density of talking about goals and plans of the workgroup and a centrality a bit below medium centrality values.

Density and centrality for the workgroups coming from the two divergent culture integration clusters are different (table 8). The cluster with a trustful climate have high density and low centrality and the one where members have a sense of negative control have the opposite; their values of centrality are higher than the other.

Table 8. The network for “talking about goals and plans of the workgroup” in different kinds of workgroups. Average values of density for talking once a month or more often, group centrality with different breakpoints and culture integration, for workgroups coming from different clusters in the workgroup selection process (HCI, MCI, LCI, DTC, DNC) respectively for bank offices (BO) and central departments (CD).

	Density	Centrality	Culture Integration
HCI	69	44	6,2
MCI	23	51	5,8
LCI	42	44	4,6
DTC	53	32	5,9
DNC	38	78	5,9
BO	53	46	6,0
CD	42	53	5,7

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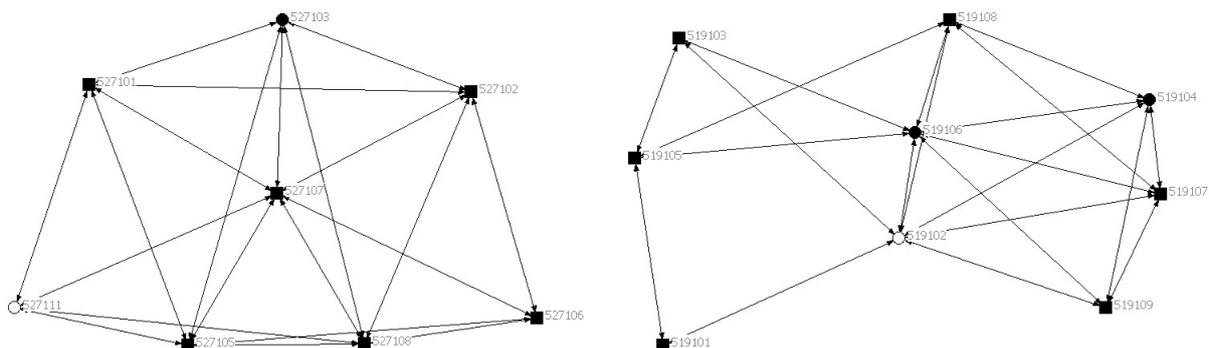
The figures of the network for “talking about goals and plans of the workgroup” of the workgroups from the cluster with high culture integration (HCI) are similar (figure 1-3). All group members have contacts with at least two others. HCI:1 and HCI:3 are very homogeneous without tendencies of subgroups. The workgroups from the cluster with medium culture integration (MCI) are less dense (figure 4-5). Both have group members without contacts to others. The networks between the ones who are included are vulnerable and dependent on few contacts. If a key member of the network is taken away more members will lose contact with the rest.

The workgroup from the cluster with low culture integration (LCI) is surprisingly similar to the HCI figures (figure 6 compared to figure 1-3). But the supervisor (the white node in the network) is not integrated in the organizational culture (the node is a triangle = low integration (square = medium integration and circle = high integration)). Most of the group members the supervisor has contact with has also low integration (6 of 7), while a bit less of the others have low integration (3 of 5)

One of the workgroups from the cluster with divergent culture integration with trustful climate (DTC) has a network of the HCI type (figure 7 compared to figure 1-3) and the other more of the LCI type (figure 8 compared to figure 4-5). The part of the workgroup DTC:1 that has high culture integration (circular nodes) is situated in the upper and left part of the figure and have relatively stronger ties with the supervisor while the others are in the lower and right part of the figure and have relatively weaker ties with the supervisor (figure 7). So even though the network is rather dense and without obvious subgroups there is an observable division between the members with high respectively medium and low culture integration. In the workgroup DTC:2 are the persons with different level of culture integration more mixed together.

The workgroups from the cluster with divergent culture integration with a sense of negative control (DNC) have the same tendency as DTC:1, that group members with the same level of culture integration are close to each other and that the group members around the supervisor have the same level of integration as he or she (figure 9-10).

Figures number 1-10 are graphs of the network for “talking about goals and plans of the workgroup”. Each node represents a group member and each edge between two nodes that they communicate once a month or more often about goals and plans of the workgroup. No line between two nodes indicates that they communicate about goals and plans more seldom or never. Circular nodes represent group members with high integration in the organizational culture (upper quartile), square nodes members with medium integration and triangular nodes the ones with low integration (lower quartile). White notes represent the supervisor of the group and black nodes employees.



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Figure 1. HCI:1

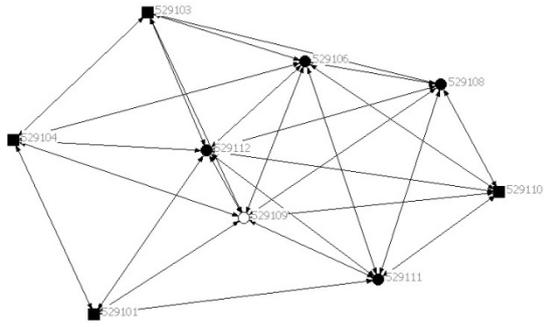


Figure 2. HCI:2

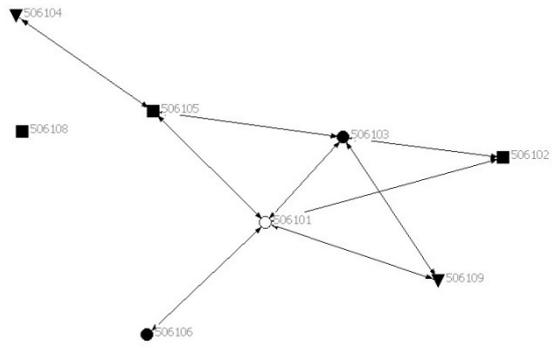


Figure 3. HCI:3

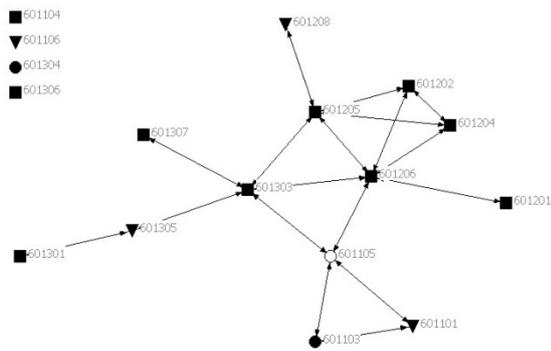


Figure 4. MCI:1

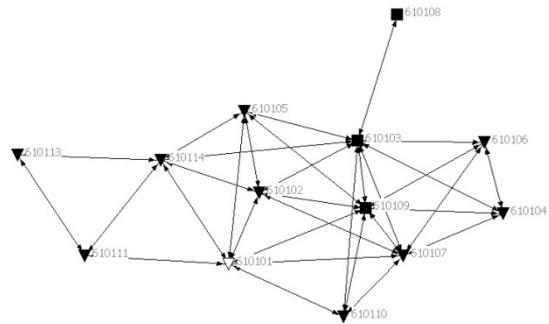


Figure 5. MCI:2

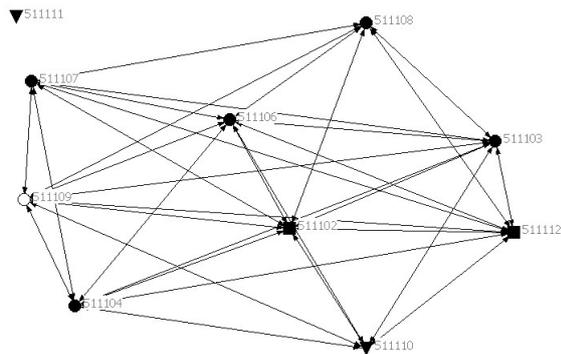


Figure 6. LCI:1

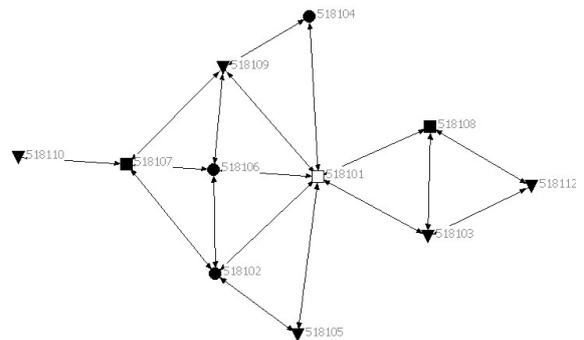


Figure 7. DTC:1

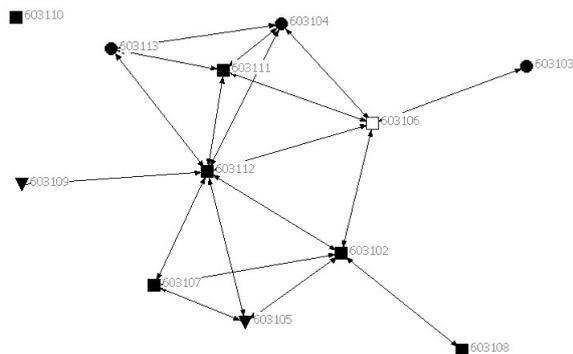


Figure 8. DTC:2

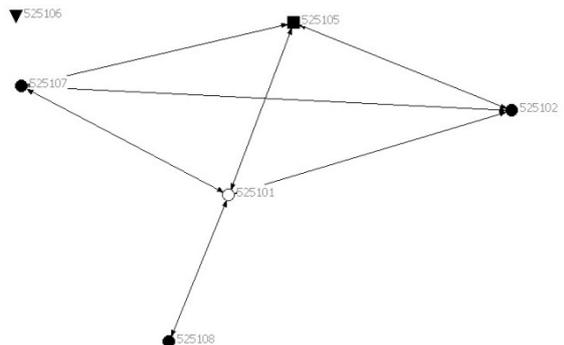


Figure 9. DNC:1



Figure 10. DNC:2



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Discussion

This article is studying the importance of communication for the integration of employees into the organization culture. We do this by answering three questions:

- What makes the culture of a work group similar to the organizational culture?
- How is a work group culture constructed?
- How is it possible that some members of the workgroup are integrated in the organizational culture while others are not?

Our theoretical understanding of culture leads us to believe that culture is something that emerges in recurrent interaction between individuals. Thus, below we are using data about the communication between group members to answer the questions. When we collected data about communication, we differed between different topics: Social small talk, Everyday experience talk, Problem solving talk, Talk about goals and plans of the workgroup, and Talk about the strategy of the company. This was meant to be a hierarchy of topics from simple ones to more advance. It seems to be correct order of topics since a general trend in table 2 is that the correlation between being central in one network is higher to being central in the networks close to this one in the hierarchy, than to networks more distant in the hierarchy.

What makes the culture of a work group similar to the organizational culture?

The bank of the study is consciously using culture as a control mechanism and the integration of the employees into the organizational culture is very high. The group culture and the organizational culture are similar for all groups in the study, except one LCI:1, which has developed more of a group culture of its own. The most striking difference with this work group and the others in the data from our study is the level of culture integration of the supervisor. Seven supervisors are highly integrated in the organizational culture, two is in the middle and LCI:1 is the only work group with a supervisor with low culture integration, see the figures. And figure 6 show that all except one of the group members that the supervisor communicate about goals and plans with also have low integration in the company culture. The same phenomena, that the group members close to the supervisor has the same level of culture integration, is seen in other figures as well.

The culture expressed by the supervisor seems to be important for the culture constructed in the work group. But the place of the supervisors seems to be less important. The supervisor is more central in the network, than the average group member (table3), but he or she is not in the middle of respectively networks (figure 1-10).

The supervisor is central for the construction of the group culture for several reasons. The supervisor has a task to be a link between the bank as a whole and the employees, and thus also to diffuse the company culture to his or her subordinates. Further, the supervisor has decision power and is normally a person to listen to and be influenced by as a subordinate. At last, supervisors are more central in the communication network than others in table 3. This means that he or she is engaged in more communication than the average group member, and thus, if culture is constructed in communication, also an important person in that construction process. This brings us to the next question.

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How is a work group culture constructed?

Our hypothesis is that the culture of a workgroup constructed in the communication between the members of the group. Recurrent communication within a group constructs a group culture and makes the group members integrated in this group culture. Does our data confirm that? And if so, is it the amount of communication and/or the topic of the communication important for culture integration?

Group members central in communication networks of the group are more integrated in the organizational culture, according to the positive correlations between individual centrality and culture integration in table 4. As already mentioned, a person in the centre of a network is engaged in more communication between group members. This gives you a central position in the construction of culture of the group and thus also makes you more culture integrated. But you could raise an objection against that: it might as well be the other way around, that being culture integrated more often gives you a central position in the group. That an integrated employee more often engage in the activities at the work place and thus, that the others more often have a need to talk to him or her. And both are probably true, it is a circular causality between cultural integration and central position in a communication network. Being central makes you more cultural integrated and being more cultural integrated makes you more central and also more important in the construction of the culture. This is a first indication that communication is important in the construction of culture.

The correlation between a person's individual centrality in a network and his or her culture integration differs for networks with different topics in table 4. The correlation is strongest for the network including talk about "goals and plans for the group". But the density for this network is a lot lower than the density for the networks with less advanced topics. So it is not only the amount of communication, but also the topic of communication that is important for construction of culture.

The hierarchy of topics we have used goes from "social small talk", which does not need to be connected to the work of the group and thus not to the culture, over to "Talk about the strategy of the company" which is very important for the work of the group and where organizational culture should be a base for the talk. Hypothetically the correlation between culture integration and central position in network could be higher for networks higher up in the hierarchy of topics. But in table 4 it is highest for the second highest step in the hierarchy: the network for "Talk about goals and plans of the workgroup".

There are at least two potential explanations for strategy talk to be less important for culture integration than goal and plan talk. Firstly, it is probably easier and more motivating for ordinary employees to connect the culture to their own goals and plans, than to the strategy of the whole organization. When talking about goals and plans of the own work group the culture becomes concretely manifested in their own everyday work and everybody's knowledge and experiences are of use, making it more important for the construction of the work group culture and the integration in it.

A second explanation is the density of the networks, see table 6. Talk about strategy occurs typically once a year, probably when the work groups are making their yearly business plan. This is probably too seldom to give the highest impact on group culture. But once a month or more often, the break point where the density of goal and plan talk reach almost 50 percent density, seems to be enough. The strategy network is the second most important for culture integration, which is probably influenced by the members central in this network more often

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being the supervisor (see table 3) and probably also employees with more experience and contacts with higher management and central support, which might give them more knowledge about the organizational culture than others. And they probably use their cultural knowledge also when talking about other topics, and might thus have a higher impact on culture integration in other networks than their position in these networks indicates.

There is also another deviation from the hypothesis that the correlation between culture integration and central position in network could be higher for networks higher up in the hierarchy of topics. The networks with everyday experience talk have a higher correlation than them with problem solving talk. From our earlier studies at the bank we know that a lot of the with problem solving talk are about the technical and administrative support systems, of the type: Where do I find this information in the database? and Which is the correct procedure in this case? There is probably a more frequent need or reason to refer to the culture in conversation about everyday experiences than in this type of problem solution.

But not only the topic, also is the amount of communication important. The four workgroups with highest culture integration are also the four workgroups with highest density in the goal and plan networks, see table 6. The work group on placing five in density is LCI:1, a group with low integration in organizational culture, but a group that have developed a group culture of its own. There might be several reasons behind the connection between density and culture integration. There is a circular causality also in this case. On one hand, culture integration increases the density. Culture integration makes it easier and nicer to talk; the persons you talk to have a similar understanding of the world and a similar language (Lubatkin, Florin, & Lane, 2001). The organizational culture of the bank includes decentralization, which in itself rises a need for communication (Backström et al., In print). In a workgroup with high culture integration and thus decentralization there is a need for employees to engage and talk about goals and plans. And on the other hand, density in the network increases construction and integration of culture. In a group working together, interacting during work, cooperate in goal formulation and planning etc. similar understanding and common values emerge over time.

From the argumentation above we conclude that high density of the network is important for culture construction and integration. But, theoretically there could be another, more rational way, to integrate employees in the organizational culture. That is to have high centralization, to have a culture integrated broker on a central position, who intermediate the organizational culture to the other members of the group. None of our three workgroups from the high culture integration cluster (HCI) have high group centrality (table 7), indicating that this is not a successful organizational solution for culture construction and integration. Culture is a complex issue where there is a need for strong ties and a broker is not the best way (Reagans & McEvily, 2003; Sorenson et al., 2006). Two workgroups have a high group centrality of their network (table 7); they are both from the cluster "Divergent culture integration with sense of negative control". This indicates another potential problem with this more rational way to intermediate the organizational culture through one or more brokers. Employees might feel that they are controlled and manipulated to think in a certain way. An emerging network is probably the best solution in this case (van Asseldonk & den Hartigh, 2008).

How is it possible that some members of the workgroup are integrated in the organizational culture while others are not?

We have concluded that culture is constructed in recurrent communication between members of a group and that members get integrated in this group culture by communicating to each other. But, if so, how is it possible for member of a group to be divergent in their culture

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integration? We will just shortly discuss it here, how this can be understood by examining the patterns of communication. This is a question we will continue to analyze, using additional other data about the individuals than the data presented in this article.

One goal in our selection of workgroups to study was to find groups where the members had divergent integration in the organizational culture; both high and low integration and at least two group members of each type. We chose four workgroups from the cluster analyses based on divergence, two from the cluster Divergent culture integration with trustful climate (DTC:1-2), and two from the cluster Divergent culture integration with sense of negative control (DNC:1-2).

Two of the four supervisors in these divergent groups have supervisors that have an integration level in middle. It might be that the culture is not clear in these groups and not so present in their communication.

In three of the four groups it seems like the member with high integration talk more with each other than with the members with low integration and vice-versa (figure 7, 9 and 10). The division between the two subgroups is not very clear; there are a lot of connections between them, but they are closer to each others in the figure. So there might be two different subcultures in these groups constructed through more intense communication with the ones who have similar understanding as you. In the group DTC:2 we are not able to see any tendency of subgroups (figure 8). It will be especially interesting to further analyze this workgroup. Is it possible to include different cultures in cooperation if the group has a trustful relation?

Ideas for future research

We have used frequency of talk about different kinds of subjects as a measure of communication. It would be interesting to study how the frequency is dependent on things like the meeting structure of the work group and the design of the room for work. From earlier research we know that pre-conditions like the persons' competence to talk and the social climate of the group are important for quality of talk. It would be interesting to add data about this in studies of communication and emergence of culture.

Conclusions

The hypothesis that culture is emerging out of communication is confirmed. Communication between members of a group is a mechanism behind the development of the sub-culture of the group and the integration of each individual member into this subculture. There seems to be a self-reinforcing spiral between collegial talk and culture integration.

Talk about goals, plans and a change at the work place is more important for emergence of culture than for example talk about everyday experiences or problem solving. To build a strong subculture it is important to have all members of a group included in talk, since persons in the periphery of the talk pattern tends to be less integrated.

The value system of the group's supervisor is strongly influencing the sub-culture of the work group. This is true also in cases were the supervisor is not a central person in the network of talk. To hire supervisors with the correct values is central for an organisation using organisational culture as a tool for control.

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