Wired attraction: effects of ICT use on social cohesion in organizational groups
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Chapter 5
Effects of ICT on Social Cohesion in Organizations: Hypotheses

Several assumptions have been formulated that provide the basis for the hypotheses regarding the effects of ICT use on social cohesion in organizational groups. These assumptions concern the relationships presented in Figure 1.1 (section 1.1) and the research model (Figure 1.2, section 1.2). Moreover, cohesion in organizational groups has been conceptualized and several antecedents of this social construct have been listed. This chapter will explore the consequences of the assumed shifts in organizational structures for these determining factors of cohesion. Our aim in this will be to gain an understanding of the indirect effects of ICT use on cohesion, resulting in a (theoretical) answer to the third sub-question. Secondly, consequences of the assumed social impact of CMC will be discussed, addressing the fourth sub-question. In both cases, hypotheses will be formulated that can be tested empirically.

5.1 ICT use in general and social cohesion

In the previous chapter, it was assumed that ICT use would lead - or give rise - to new organizational forms characterized by:
- a flat structure, resulting from a decrease in vertical complexity and middle management;
- a lean and more integrated structure resulting from a decrease in supporting and executing staff, as well as a decrease in horizontal complexity;
- a dynamic structure resulting from an increase in temporary teams and blurring organizational boundaries; and
- geographical flexibility (employees working from physically dispersed locations, regardless of time).

Several consequences of these new characteristics for the antecedents of social cohesion can be formulated. These consequences appear to vary between different levels of entities within organizations.
The physical distance between employees can increase as a consequence of working from physically dispersed locations and the rotation of teams. This decrease of propinquity will be most noticeable at the level of relatively small entities, such as work teams. After all, in more traditional organizations, members of such groups often share a room or floor. On a larger scale, employees are more spread out over - say - different floors or offices.

When team rotation takes place over relatively short periods, the team in question has less time to mature. This rotation may also affect identification processes, since it allows team members less time to share experiences. Secondly, at the level of these relatively small entities, boundaries between entities may blur, resulting in a lesser degree of distinction between the different groups. On the other hand, when employees take part in different projects and teams rotate, individuals will share experiences with a greater number of people in the organization. Thus, on a larger scale, these characteristics may stimulate identification processes. The same argument concerns interaction processes within the organization. At smaller levels of entities, less time is available to interact with group members. On a larger scale, however, new interaction patterns come into existence. In other words, interaction becomes less concentrated and spreads increasingly throughout the entire organization. This decrease of interaction on a smaller scale may be reinforced by the fact that ICT enables employees to act more autonomously. By using ICT, (decentralized) organizational units can act relatively autonomously; employees can have direct access to information, and hierarchical lines become shorter (stemming from the flattening of organizations). In addition, the process of workflow coordination becomes increasingly electronic, thus requiring less human interaction.

The integration of tasks and blurring of boundaries serves to bring formerly separated disciplines together. As a result, the background differences between employees working together increases, especially with regard to their expertise or function. This could affect social cohesion directly and indirectly. (After all, it was assumed that similarity between group members can also be considered an antecedent of social identification).

Integration in organizations is often paired with more cross-functional jobs for individuals or teams. These individuals or teams may temper the increase in differences, or may function as a “buffer” at larger levels of entities. Moreover, organizational integration may lead to leaner organizations in which the majority of people are involved in the primary business processes. Ancillary processes, such as administrative activities, are increasingly supported electronically, with minimal human intervention (i.e. workflow management). This means that, on a larger scale or at the organizational level, differences in the tasks and expertise of employees do not have to increase – and may even decrease.

Thus, at the level of relatively small groups (e.g. teams), changes in organizational structure triggered by the use of ICT appear to lead to

(a) a decrease in propinquity;
(b) a decrease in maturity;
(c) less background similarity; and
(d) a decrease in interaction processes.

Moreover, identification processes at this level can be restrained by characteristics of the new organizational form. Given these consequences, it can be assumed that characteristics of the new organizational form have a restraining effect on the development and/or maintenance of social cohesion in relatively small organizational groups.

Taking into account larger entity levels or the organization as a whole, the characteristics of the new organizational form appear to have rather positive consequences for the antecedents of social cohesion. In summary, characteristics of the new organizational form appear, at the organizational level, to lead to:

(a) an increase in interaction;
(b) an increase in the amount of control or more centralized control; and
(c) an increase in background (and status) similarity.

The new organizational characteristics also create a positive climate for identification processes at these levels. As opposed to the restraining effect on social cohesion at the smaller entity levels, we can expect a stimulating effect on the development and/or maintenance of social cohesion in the case of relatively large groups.

The assumptions discussed here regarding the (indirect) effect of ICT use in general on social cohesion in organizational groups can be covered in two hypotheses:

**Hypothesis 1a**

ICT use in general has a negative effect on social cohesion in relatively small, task-related groups in organizations.

**Hypothesis 1b**

ICT use in general has a positive effect on social cohesion in relatively large, task-related groups/segments in organizations.

Since these hypotheses concern the indirect effect of ICT use, two of the three relationships presented in the research model are incorporated in the hypotheses. In testing these hypotheses empirically, both relationships should be studied.
5.2 CMC and social cohesion

When it comes to CMC’s social consequences for social cohesion, there appears to be some difference between the smaller and larger entity levels as well. This difference seems to stem from the fact that CMC may replace FTF in smaller teams. On a larger scale, however, CMC is added to other available media suitable for large-scale communication processes. At larger levels of entities, FTF is not likely to be replaced by CMC. After all, at that level, FTF may not be a suitable medium simply because the group is too large. The previous chapter describes the social impact of CMC. In summary, it was argued that, due to the absence of non-verbal cues, CMC facilitated communication processes between people who did not know each very well or were quite different from each other (heterogeneous networks). In relation to this characteristic, CMC was found to increase interaction within (and outside) the organization. This increase in interaction is also supported by CMC’s (and ICT’s) capacity to create some form of virtual propinquity, supplying a means to communicate with other people regardless of geographical distance. Given these characteristics, we can expect CMC to have a stimulating effect on the development of social cohesion at larger levels of entities. Differences in, for instance, expertise to background become less important in interaction processes. Moreover, the number of contacts that individuals maintain on a larger scale increases.

Where FTF is partially replaced by CMC in relatively small teams (e.g. because of physically dispersed working locations), CMC’s social impact, as discussed in the previous chapter, may have fairly negative consequences for the development or maintenance of social cohesion. FTF is considered to be a richer medium, featuring characteristics, such as direct feedback and, unlike most CMC, the capacity to use non-verbal cues. Replacing FTF by CMC may, therefore, result in less intense or more superficial communication processes due to the exchange of so-called “poorer messages.”

What we have discussed here regarding CMC’s social impact in smaller and larger organizational groups can also be covered in two complementary hypotheses:

**Hypothesis 2a:**

CMC by relatively small, task-related groups in organizations has a negative effect on social cohesion in these groups.

**Hypothesis 2b:**

CMC by relatively large, task-related groups/segments in organizations has a positive effect on social cohesion in these groups.

As regarding the indirect effect of ICT use in general, as well as the direct effect of CMC within a group, we can expect a difference between smaller and larger entities in organizations. The following section presents a model that is applicable to both small and
large groups. The sign of the assumed ICT effects in this model, however, will depend on the size of the group.

5.3 A theoretical model

The diagram in figure 5.1 presents the assumed relationships between ICT and CMC and social cohesion. Relationships in between antecedents of cohesion are included as well. The model assumes that the antecedents, as well as the use of ICT/CMC, will affect social cohesion. These factors will also interact with each other to some extent. In chapter 3, for instance, we assumed a relationship in between antecedents. Secondly, the arguments presented concerning the assumed effects of ICT and CMC are based on relationships between characteristics of ICT/CMC and antecedents of cohesion. However, the different factors will, to some extent, also contribute independently to the development or maintenance of social cohesion. Interaction between group size and the other antecedents can lead to a difference in these effects of antecedents in smaller and larger groups. This is interesting because of the assumed opposed effects of ICT use in smaller and larger groups. Identification with the group is assumed to be a very strong factor in this model, regardless of the level of entity (group size) studied. Secondly, this factor can be affected by some of the antecedents of cohesion.

As can be seen, some variables are found on individual level, such as in interaction within the group and ICT use in general; others operate at the group level. Most antecedents of cohesion can be considered group characteristics, which cannot be measured on the individual level (propinquity between group members, similarity between group members, group size, group maturity). Leadership is somewhat complicated since it is incorporated by one individual, but may be experienced or evaluated differently by each individual group member. Since each individual group member has his or her own contacts and interaction patterns within the group, the antecedent ‘interaction within the group’ is included on the individual level.
Figure 5.1 Theoretical model of relationships between social cohesion and ICT use

The factors, “ICT use in general” and “CMC within the group” refer to the assumed indirect and direct effect of ICT, respectively. ICT use in general is included as a factor on the individual level. The shifts in organizational structure discussed in Chapter 4 are considered more related to overall ICT use by organizational members, than to ICT use per organizational entity or group. With regard to the direct effect, it is assumed that CMC is either added to other media, or replaces other media (FTF). In both cases, the total use of communication media within a group involves CMC to some extent. If that use were to increase, social cohesion would either increase (in larger groups) or decrease (in smaller groups). From this perspective, CMC is considered to be a group characteristic.

This theoretical model is claimed to be applicable to both smaller and larger organizational groups and incorporates hypotheses 1 to 4. In testing these hypotheses empirically, this model should also be tested, resulting in a negative effect of the ICT factors in smaller organizational groups and a positive effect of the ICT factors in larger organizational groups. These theoretical assumptions do not provide a sufficient basis for any statements regarding the
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exact size of large groups. Rather, that should be explored further by empirical research into the effects of ICT on cohesion.

5.4 Conclusion and discussion

Four hypotheses concerning the effects of ICT use on social cohesion in organizational groups have been formulated. In summary, a causal relationship between the use of ICT/CMC and the development and/or maintenance of social cohesion is assumed; the sign (positive or negative) depends on the level of entity studied. In other words, in light of the theoretical discussion of social cohesion in organizational task-related groups (Chapters 2 and 3) and the characteristics of ICT use in organizations (Chapter 4), we can conclude that if ICT is - or has been - implemented on a large scale in a (large) organization, the cohesion in relatively small, task-related entities or groups will decrease, while the cohesion in larger entities or groups will increase.

The hypotheses formulated here imply that group size interferes with the effects of ICT use on social cohesion. It is, however, not (yet) clear what should be considered a “relatively small” and a “relatively large” group. Moreover, we may also find differences within a category of small groups, (which we can envision based on common sense). Project or work teams were mentioned as examples of small groups; however, these teams can still vary in size. Conceivably, a team consisting of 6 members could function very differently from, say, a 20-member team. In a group of 6, for instance, it would be easier to maintain frequent contact with group members, despite any increase in contacts outside the group. This may be because less time is required for these contacts since there are fewer members, or because more intensive working relationships might exist in such a small team. In a 20-member group, this may not be the case. In light of this, it may be necessary to make a distinction between “very small” and “small” groups. In larger groups, we can encounter variation as well. In studying the hypotheses formulated here, therefore, we should explore different size categories.

In the discussion on the conceptual model of social cohesion, it was argued that intergroup relations should be accounted for within an organizational context. However, the role of intergroup relations was not included in the empirical research for this dissertation. This was because of the reasons regarding the operationalization of social cohesion discussed in Chapter 3 (section 3.4). Considering their possible influence, that does not necessarily pose a problem to this study. These relationships can be expected not to interfere negatively with the hypothesized effects of ICT/CMC. Theoretically, it can even be assumed that the interaction between intergroup relations will reinforce the assumed effects. It was argued that a negative relationship exists between ingroup and outgroup attraction at the same level of entities and a positive relationship between both forms of attraction between levels of entities (Figure 3.1). If ICT use negatively affects social cohesion, thereby weakening ingroup attraction, negative
outgroup attraction may diminish. In other words, the attitude of group members towards organizational members outside their own group may become more positive. That, in turn, may help to accomplish social cohesion on a larger scale within the organization. In interpreting and discussing the empirical results of this dissertation, we will look, once again, at the role of intergroup relations.

In testing the theoretical answer to the focal research question in this dissertation, the four hypotheses formulated here will be tested separately and integrated into the empirical research (see model 5.1). The following chapters will discuss the design, results and conclusions of the empirical part of this dissertation.