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Building shared context and shared identity through communication

A qualitative study of interviews with Austrian and U.S. teams in the IT sector

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Abstract

Teams with flexible work arrangements are continuing to gain importance. The different working hours and places involved, however, lead to an increased complexity of communication within the teams. Literature suggests that by striving to improve communication, teams can build shared context and shared identity, which will help prevent conflicts and misunderstandings, promote mutual understanding, and lead to improved communication. The proposed research therefore strives to answer the following question: How does communication facilitate the development of shared context and shared identity in teams with flexible work arrangements? A qualitative content analysis of interviews conducted at software development teams in two technical organizations located in Austria and the USA is presented. The findings suggest that communication influences the development of shared context and shared identity in three ways: (1) it provides the necessary platform and precondition, (2) certain communication tools support the development of shared context and shared identity, and (3) shared context and shared identity are fostered by getting to know each other. Ultimately, guidelines were derived from the results, which are intended to support team members and make developing shared context and shared identity more achievable.

1. Introduction

New technologies are changing when, where, and with whom we work. Traditional offices have become a rarity and instead, an increasing number of organizations focus on flexibility and new Information and Communication Technology (ICT). They try to maximize their benefits of the virtual world by implementing geographically distributed teams. Those teams consist of people who are located at different offices, in different cities, or even different continents. Such work arrangements bring many advantages for employees as well as the organization, for instance reduced commute time and higher flexibility (Vos & Van der Voordt, 2001; Kurland & Bailey, 1999). Despite of such significant advantages, working with people you hardly ever see face-to-face, and maybe have never even met in person, also comes with a lot of new challenges. The reduced face-to-face contact makes it more difficult to develop trust and shared values (Kurland & Bailey, 1999). Coordination requires more attention and effort, and the number of conflicts increases (Hinds & Mortensen, 2005). Furthermore, when working with people from different countries, it might be more difficult to understand each other, not only because of language barriers, but also because of different customs and expectations (Olson & Olson, 2000; Kurland & Bailey, 1999). Cultural diversity thus often leads to increased communication complexity, resulting in miscommunication (Shachaf, 2008).

Most of the issues mentioned above are based on poor and insufficient communication between the dispersed team members. According to Te'eni (2001) the impact of communication are mutual understanding and relationship, which complies with the theory of Hinds and Mortensen (2005) who state that communication helps to develop shared context and shared identity. These theories are very important, because studies show that a strong shared context and shared identity can help geographically distributed teams to overcome their difficulties (e.g. Hinds & Bailey, 2003; Fussell & Krauss, 1992; Hinds & Mortensen, 2005).

The shared context describes all the knowledge, which communication partners in a certain situation possess, and all the information they both have access to, as well as all tools and physical surroundings they share (Brézillon & Pomerol, 1999; Hinds & Bailey, 2003; Hinds & Mortensen, 2005). For co-located team members it is, for instance, easy to point to something, or to gesture to strengthen their point. Most of the time they will automatically have access to the same tools and artifacts and are probably already familiar with each other (Olson & Olson, 2000). In geographically distributed teams all of this needs extra effort. However, it is important to make this effort because a shared context makes communication more efficient (Clark & Marshall, 1981), decreases the probability of misunderstandings (Cramton, 2001) and increases mutual understanding (Brézillon & Araujo, 2005).

Shared identity describes the attitude towards the team members and the *we-ness* (Cerulo, 1997) of the team. It leads to prosocial behavior and fosters trust and commitment (Kramer & Brewer, 1984; Swaab, Postmes, Van Beest & Spears, 2007). In addition, it helps to overcome interpersonal conflicts (Hinds & Mortensen, 2005), and to improve cooperation (Bos, Buyuktur, Olson, Olson & Voida, 2010).

Multiple studies show how beneficial shared context and shared identity for teams with flexible work arrangements are, but so far research lacks to explain how they are developed. Different researchers suggest that both are fostered by communication (e.g. Hinds & Mortensen, 2005), but they do not go into more detail. To be able to provide optimum support for geographically distributed teams, however, there is need for research on how shared context and shared identity are actually built. This research therefore focuses on the question how communication facilitates the development of shared context and shared identity in teams with flexible work arrangements.

To be able to draw conclusions interviews were conducted at two different companies in Austria and the USA. The intercultural setting was chosen in order to gain insights on the national influences on the development of shared context and shared identity through communication. The interviews were analyzed following the qualitative content analysis of Mayring (2008). Ultimately guidelines for future geographically distributed teams were derived from the results. They are intended to support and enable members of such teams and make developing shared context and shared identity more achievable, which will in turn improve their collaboration.

2. Empirical research

As mentioned before, shared context and shared identity have a positive impact on teams by helping them overcome difficulties and improve their collaboration. Therefore it should be the goal of every team to build a strong shared context and shared identity and for every supervisor to foster both. Literature so far only states that communication helps this process, but fails to explain the exact procedure. This issue is addressed by the first research question:

Research Question 1: How does communication facilitate the development of shared context and shared identity in teams with flexible work arrangements?

As discussed before, geographically distributed teams often experiences difficulties because of their heterogeneity, which makes it harder to collaborate. Only if people are aware of differences they can work together to overcome them. Thus the second research question aims at the impact of nationality and culture on the creation of shared context and shared identity.

Research Question 2: Which differences exist between the Austrian and the U.S. teams when developing shared context and shared identity through communication?

Austria and the USA were selected to be able to analyze differences in the creation of shared context and shared identity in a reasonable way because the two cultures are different, but not in so many ways that it would be distracting from the actual subject. For example, both the USA and Austria belong to the western culture (O'Hara-Devereaux & Johansen, 1994), but people from the USA have a more task oriented perspective while Europeans might value personal relationships more (Olson & Olson, 2000).

The nature of the two research questions required an explorative approach to acquire new knowledge and to be able to generate new hypotheses. Consequently semi-structured interviews with open questions were conducted. The questions were derived from literature and addressed the topics of the research questions. Later on the interviews were transcribed which naturally resulted in a text-based transcript. The *qualitative content analysis* (Qualitative Inhaltsanalyse) was chosen to evaluate and interpret the transcript. It is based on hermeneutic methods and supports a rule-based evaluation of interviews (Krüger & Riemeier, 2014). It is furthermore a typical approach for qualitative research and aims at the development of hypotheses and the generation of new theories (Mayring, 2008).

The qualitative content analysis was developed by Philip Mayring and is a process of systematic and rule-governed interpretation of a text (Ramsenthaler, 2013). The goal of the qualitative content analysis is to analyze material that resulted from any form of communication. The systematic, rule-based and theory-based approach is essential in this process and allows drawing conclusions about certain communication aspects. The idea is thus to summarize a text in a specific way, so that it will eventually be reduced into certain categories, which then allow a replicable and transparent analysis and interpretation (Mayring, 2008).

The qualitative content analysis has sometimes been criticized because it is not purely inductive and it does not take individual cases into consideration. However it is a rule-governed system that enables the researcher to induct categories from the material and is therefore an often used and established approach (Ramsenthaler, 2013). It assures an intersubjective comprehensible system by fulfilling the following three quality criteria: objectivity, validity and reliability (Mayring, 2008).

A total of 20 interviews were conducted on four separate occasions between February and May 2015. Data gathering took place in two international organizations, which both have an office location in Austria and in the USA respectively. In February, ten interviews were conducted in Vienna (Austria), five at each organization. In March five interviews were conducted in Princeton (USA) at one organization, and in May five in Seattle (USA) at the other organization.

In both organizations participants were reached through personal acquaintances of the author. They were asked to recruit a representative sample of the employees of the organization with divergent tasks within the software sector.

At each office location only one female employee was interviewed and most of the interview partners were under 45 years old. In the USA, however, the average age of the participants was higher than those of the Austrian locations. At the first and fourth interview location the five participants were members of two different teams. At the second and third location they were in three different teams. At all four interview locations, the teams included six men on average. However, at the two office locations of organization 1, on average, less than one woman was in each team, while organization 2 had approximately two women.

PID	Anonymized name	Organization	Ctry	Team	Position	Age	Gender
1	Stephanie	1	AT	1	Software architect	25-35	F
2	Manuel	1	AT	2	Technical project manager	36-45	M
3	Li	1	AT	2	Software architect	25-35	M
4	Lukas	1	AT	2	Software developer	36-45	M
5	Peter	1	AT	2	Data mining	25-35	M
6	Kevin	2	AT	3	Database, testing	25-35	M
7	Jeffrey	2	AT	4	Software quality manager	46-55	M
8	Walter	2	AT	4	Scrum master, developer	25-35	M
9	Christian	2	AT	4	Software developer	25-35	M
10	Nele	2	AT	5	Technical writer	46-55	F
11	Shakuntala	1	USA	6	Scrum master	46-55	F
12	Frank	1	USA	8	Software architect	25-35	M
13	Madhukar	1	USA	7	Software developer	36-45	M
14	Alexander	1	USA	6	Software architect	46-55	M
15	Lal	1	USA	6	Technical project manager	> 55	M
16	Will	2	USA	9	Technical writer	36-45	M
17	Roland	2	USA	9	Software developer	> 55	M
18	Anna	2	USA	10	Software build engineer	> 55	F
19	Dan	2	USA	10	Software quality manager	25-35	M
20	Geoffrey	2	USA	9	Software developer	46-55	M

Table 1: Composition of the interview participants

At each location the interview partners occupied a lot of different IT positions like QA testers, build/infrastructure engineers, documentation writers, scrum masters, and developers. Table 1 gives an overview of the composition and positions of the participants. On average the participants in Austria have been working for their organization for six years, while the participants in the USA have been working for their organization for about ten years.

Even though the demographic data of the participants is not very balanced, the sample largely represents the demographics of technical companies (Mangalindan, 2014) and especially of the studied organizations and is thus representative for the focus of this research.

The main unit of data for the qualitative content analysis is the 195 pages long transcript of the 20 interviews. All paragraphs that help answering the research questions about shared context, shared identity and the differences between the Austrian and the U.S. teams were selected and used for the analysis.

All interviews were anonymized and names of people, projects, or locations were substituted with new names that indicated their demographics or nature, but do not give any conclusion as to who, what, or where the original person, project or location was. Eleven Interviews were conducted in English and nine in German, because one participant at the first interview location in Austria preferred to answer in English, since his first language was not German. Since neither German nor English are the native language of all participants sometimes it was necessary to rephrase a question and ask again and not all sentences are in perfect English or German. Nevertheless everything was transcribed without corrections to ensure that the data set is complete. References that are used in the text of the thesis, however, have been cleaned from filler words and incomplete sentences have been completed, in order to improve readability. Table 2 shows a small extract of the transcribed interviews and serves as example of the way the transcription rules were applied.

The goal of the qualitative content analysis is to structure the material in a way that allows for an objective and reproducible interpretation. The main topics of both research questions are the development of shared context and shared identity. Consequently the two main categories are called *Building shared context* and *Building shared identity*. It has to be pointed out that the categories not only include information about building, but also about maintaining shared context, or shared identity respectively. To simplify matters, however, only the word “building” is used in the category name. This is legitimate because, as explained before, both shared context and shared identity are dynamic concepts that are constantly changing. Thus a team will never be able to complete the task of building them.

During the analysis all paragraphs describing the physical context and the local surroundings (Hinds & Bailey, 2003) as well as the mental context, the available information and tools, and the work process (Hinds & Mortensen, 2005) will be assigned to the first category, *Building shared context (C1)*. All paragraphs concerning the *we-ness* of a group, the feelings towards the colleagues and what enables the group to work together well (Cerulo, 1997; Hardy, Lawrence & Grant, 2013) will be assigned to the second category, *Building shared identity (C2)*.

According to Mayring (2008), each main category is to be split up into subcategories, which he calls *characteristics*. The characteristics are derived from literature, as well as from the empirically collected data, and it has to be ensured that there is enough material for each characteristic to be meaningful. Rest subcategories like *neutral* or *undefined* have to be taken into account as well, to cover the whole category. In addition, a category called *Idiosyncratic* was introduced for references that were interesting, but did not fit into any of the other categories. Mayring (2008) recommends the use of an ordinal scale for the subcategories. For answering the research questions of this thesis, however, nominal scales with characteristics closely related to the main categories were chosen, as those are more meaningful and expressive.

As already mentioned, the first main category is called *Building shared context (C1)*. It is illustrated, together with all its characteristics, in Figure 7. The development of shared context heavily depends on information exchange (Brézillon, 1999; Te'eni, 2001; Brézillon & Pomerol, 1999). Exchanging information can be seen as the precondition and framework for building a shared context. The first characteristic is therefore called *Information exchange (C1.1)*. It is intended to identify the different strategies for knowledge sharing in teams. As explained before, the conscious and active exchange of information is especially important for building a shared context. Thus only paraphrases regarding such an information exchange will be assigned to this characteristic. A simple conversation would not be enough to fit into this category. The information exchange has to be intentional and the main goal of the conversation. Standardization is a way of explicity, thus all regular or predefined information exchanges will be assigned to this category as well. As already mentioned, shared knowledge has to be documented and organized to be not only useful for the communication partner, but also for the organization. Otherwise it will be forgotten as soon as the project is over, or someone leaves the team (Santoro & Brézillon, 2005; Araujo & Brézillon, 2004). Therefore, depending on whether the information has been shared orally or in a documented way, and if the whole team or only a part of the team has been included in the process, the paraphrases will be assigned to the corresponding subcategory. For instance, Dan, one of the interview participants, said: "Every day we have a meeting at nine o'clock, called Standup meeting. Just to touch base, what I did yesterday, what I'll be working on today, and if there are any blocking issues. We discuss that every day"

(USA, O2, 19, 00:02:22). This paraphrase concerns the information exchange at a daily meeting and has thus been added to the subcategory *Meeting (C1.1.1)*.

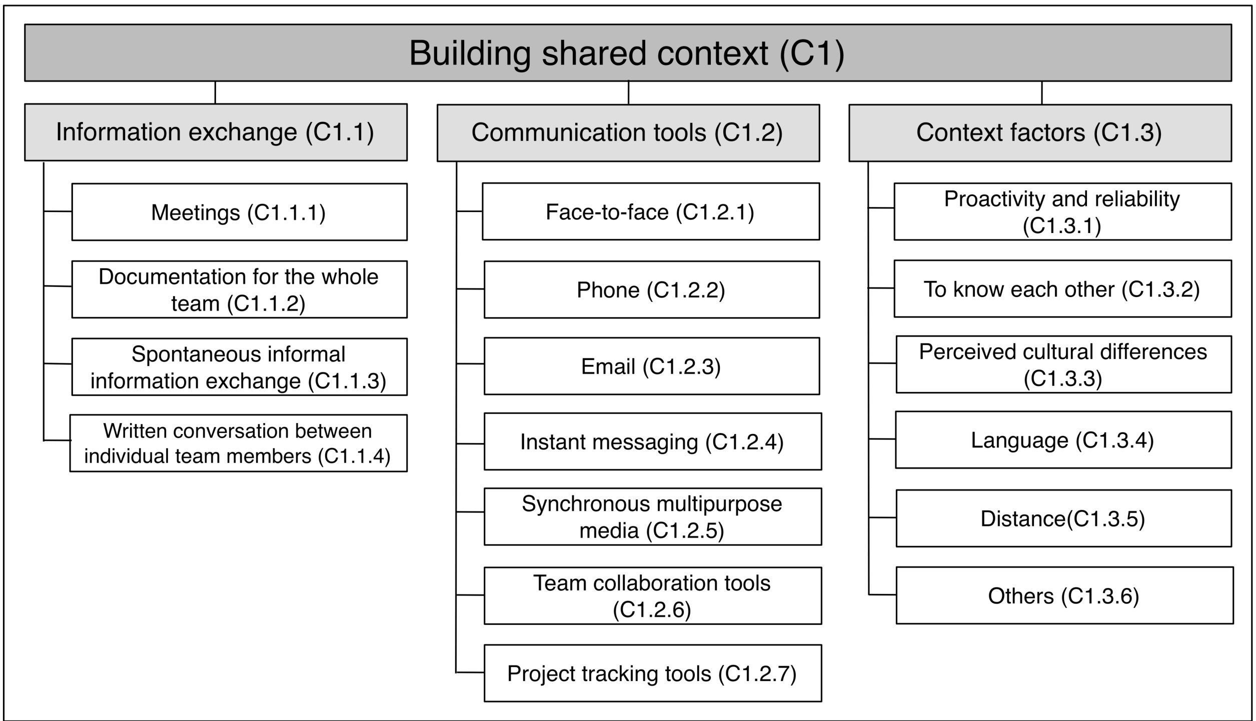

Figure 7: Main category *Building shared context* and its characteristics

To sum up, this first subcategory, *Information exchange*, describes the basic prerequisites that are necessary for the development of a shared context. Information exchange is closely connected to the communication media that provide the necessary platform and channel for developing shared context. In line with these arguments Hinds and Mortensen (2015) suggest that the compatibility between the individual team members' tools and work processes is an indicator for their shared context. Therefore a second characteristic, called *Communication tools (C1.2)* has been introduced and will be used to analyze which communication media foster the creation of shared context and, if the tools of the individual team members are compatible. Every time the use of a medium (or face-to-face communication) is mentioned in connection with shared context building a paraphrase will be assigned to the respective subcategory. The statement can contain information as to whether the medium is helpful or not, but can also just mention it. The classification of media was derived from Dennis, Fuller, and Valacich (2008) and transferred into subcategories that fit the data material. Consequently statements like: "Naja wir verwenden als Plattform SharePoint wo wir unsere Dokumente austauschen" (AT, O1, 5, 00:02:46), are categorized as *Team collaboration tools (C.1.2.5)*.

The first subcategory, *Information exchange*, describes the general framework for building shared context, while the second subcategory, *Communication tools*, describes the channels used to develop it. The interviews revealed, however, that building a shared context depends on more than just the basic requirement of information exchange and the support of communication tools. Multiple soft factors can influence the development of shared context in both, positive and negative ways (Hinds & Mortensen, 2005; Santro & Brézillon, 2005). Therefore a characteristic *Context factors (C1.3)* will be used here as well. Five such influences have been identified from the dataset and all paraphrases that either directly state, or indirectly imply that a certain communication tool, a situation, some circumstances, etc. helped to build a shared context will be assigned to the corresponding subcategory. If such a classification is not possible the respective paragraph will be assigned to the category *Others (C1.3.6)*. The subcategories can contain positive and negative statements and are also illustrated in Figure 7. C1.3.2, for example is called *To know each othe*r and therefore contains all interview answers, which indicate that it is beneficial for the development of a shared context if the team members already know each other. It contains statements like

> The developers and QA here are all people I have worked with for a long time – for ten, or more years. And so I know them well and I feel like I can pretty easily just go up to them and say: Hey Geoffrey how does this work, or whatever. And I'll get an answer pretty quickly on this stuff (USA, O2, 16, 00:14:40).

The second main category is called *Building shared identity (C2)*. The literature review revealed that shared context and shared identity are two very closely related concepts (Hinds & Mortensen, 2005; Swaab, Postmes & Spears, 2008). Thus it is not surprising that their subcategories turned out to be similar as well. The general conditions differ however. As already mentioned, shared context is based on information exchange. Shared identity, in turn, can be built through social interactions (Postmes, Haslam & Swaab, 2005) and can be formed by opportunities to communicate (Bos et al., 2010). Thus the first characteristic, *Social interactions (C2.1)*, is introduced and aims at describing the framework and general conditions in which social interactions take place in everyday corporate life. It is supposed to help identifying and analyzing the circumstances and situations, which provide the necessary preconditions and good opportunities for social interactions and therefore make the development of shared identity possible in the first place. As discussed in the theoretical part, Swaab et al. (2008) propose that social identities can either be the result of a top-down, or bottom-up process. Thus each paraphrase about social interactions, initiated either by someone in a leadership position, or a team member, will be assigned to this category. It can contain information about the location of the interaction, who organized it, who participated and which impact it had on the team feeling. Depending on the circumstances, or the setting of the interaction the paraphrase will be assigned to the corresponding subcategory. Five such circumstances have been mentioned during the interviews. Initially an additional sixth subcategory called *Others* has been planned, but the assignment of the references showed that it would be unnecessary because all references could be classified clearly with one of the other five categories. For instance, the interview answer: "I mean we go for lunches sometimes, and other than that we don't do that much together" (USA, O1, 15, 00:21:20), has been assigned to the category *Lunch / coffee break (C2.1.2)*. The main category *Building shared identity (C2)* with all its subcategories is illustrated in Figure 8.

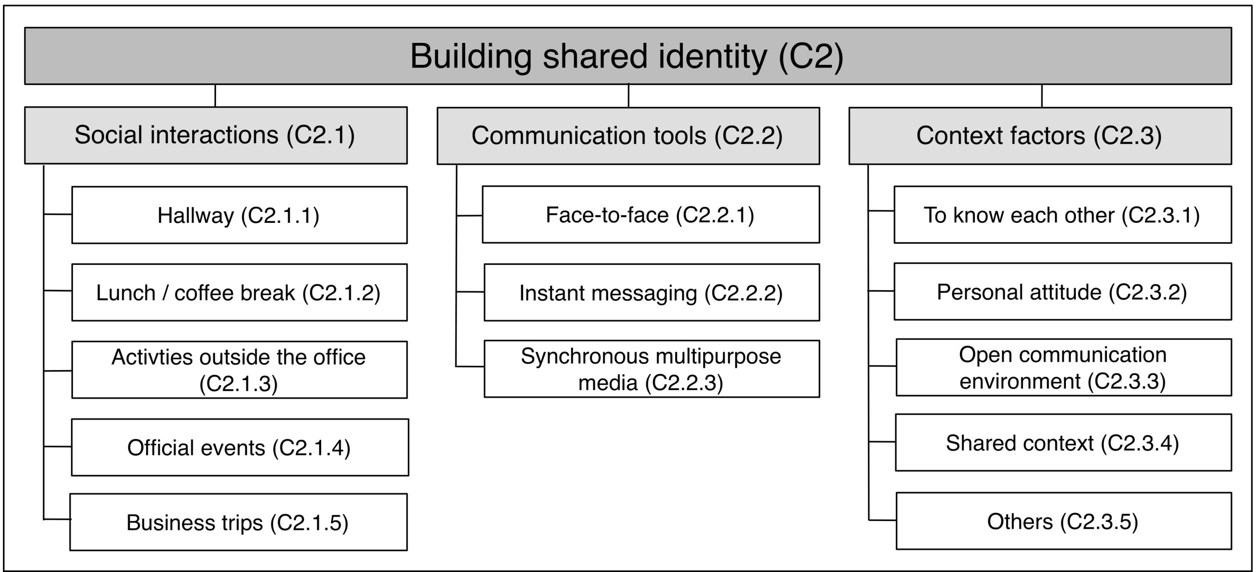

Figure 8: Main category *Building shared identity* and its characteristics

Social interactions are based on communication. According to Hinds and Mortensen (2005) communication fosters the development of shared identity. Again communication media provide the necessary platform and channel for developing shared identity. Different media, however, are associated with different advantages and disadvantages (Daft & Lengel, 1986; Te'eni, 2001). In order to be able to draw conclusions about the influence of a communication medium on the development of a shared identity a second characteristic called *Communication tools (C2.1)* is introduced. The subcategories are again based on the classification of media by Dennis et al. (2008). Dennis et al. (2008) also state that depending on how familiar co-workers are with each other and their tasks, they will have a higher, or lower need for media synchronicity. Every time the use of a medium (or face-to-face communication) is mentioned in connection with shared identity building a paraphrase will be assigned to the respective subcategory. The statement can contain information as to whether the medium is helpful or not, but can also just mention it, as it is the case with the following reference: "Ja dann kontaktieren wir uns kurzfristig: 'Was machst du zum Essen?' Meistens über dieses Chatprogramm" (AT, O2, 10, 00:06:07).

The interviews showed that building shared identity depends on soft factors as well. This is in line with the findings of Swaab et al. (2008) who showed that certain circumstances could foster the creation of shared identity, while others make it harder for a group to develop a feeling of *we-ness*. The third characteristic of the main category *Building shared identity (C2)* is thus called

Context factors (C2.3) and contains all paraphrases, in which the respondent either directly states that something influenced her or his feeling towards the team, or where it is not directly said, but obviously implied. Statements about the *we-ness* regarding the whole team, sub-groups of the team, or individual members are also to be included. Depending on what it was that influenced the shared identity the paraphrase will be assigned to the corresponding subcategory. The subcategories can contain positive and negative statements. Four such influences have been identified inductively from the dataset. C2.3.4, for example, is called *Shared context* and contains all statements, which indicate that a shared context influences the development of a shared identity. "We all work towards a common goal. So I think that there is, and that you have, that sense of teamwork, a joined responsibility, and a joined accomplishment. And that is probably the time where you are most connected" (USA, O2, 16, 00:28:44). Again an additional subcategory *Others (C2.3.5)* has been added.

The two main categories and their characteristics sum up to 30 subcategories and will be used to classify the data collected during the interviews. Mayring (2008) recommends developing *coding guidelines* (Kodierleitfaden) with the definition, anchor example and coding rule. In a trial run the researcher moves through the text and marks the sections, which apply to one of the categories and puts them into a table for the further analysis process. Mayring (2008) also mentions that in this step most categories, definitions, and rules will be edited and reworked, which was also the case with this research project.

Table 4 shows an excerpt of the coding guidelines of category C2.1. Based on Mayring (2008) it contains the definition of the category, the respective anchor examples and the coding rules. The coding rules were developed based on the definition and discussion of the category given above. The abbreviation in the brackets after each anchor example uniquely identifies the quote. For instance, (AT, O1, 1, 00:11:49) stands for Austria, organization 1, participant 1, at 00:11:49.

Cat.	Definition	Anchor example	Coding rules
Hallway (C2.1.1)	Two or more team members engage in social interaction at the office in the hallway, e.g. on their way in, or to someone's desk.	"Wenn man sich am Gang trifft oder so wird natürlich auch […] kurz geplaudert" (AT, O1, 1, 00:11:49). "I might meet somebody on the, you know corridor. I might talk about a ball game, or whatever it is" (USA, O2, 19, 00:04:50).	The statement describes a face-to-face meeting at the office in the hallway or at someone's desk between two or more team members. It can be a spontaneous, or an arranged meeting. Since the meeting took place face-to-face an additional paraphrase has to be added to C2.2.1.
Lunch / coffee break (C2.1.2)	Two or more team members engage in social interaction at lunch or at a coffee break.	"Normalerweise nach dem Mittagessen gehen wir gemeinsam auf einen Kaffee. Das heißt der eine sagt: 'Coffee break'. Sozusagen. Dann gehen wir gemeinsam auf einen Kaffee. Dann stehen wir in der Küche und dann werden in der Regel – also versucht man natürlich nicht nur über die Arbeit zu reden sondern auch über andere Dinge" (AT, O1, 2, 00:05:59). "I mean we go for lunches sometimes, and other than that we don't do that much together" (USA, O1, 15, 00:21:20).	The statement describes a face-to-face meeting at lunch or for coffee between two or more team members. It can be a spontaneous, or arranged meeting. If the lunch or coffee break took place at a business trip the statement has to be categorized as C2.1.5. Since the meeting took place face-to-face an additional paraphrase has to be added to C2.2.1.
Activities outside the office (C2.1.3)	Two or more team members engage in social interaction outside of the office, e.g. getting a beer after work or doing sports together.	"Und dann natürlich vor den Weihnachtstagen hat es auch einmal gegeben, dass wir gemeinsam zum Punsch trinken gegangen sind, am Karlsplatz. Und ahh ja, wird hoffentlich in Zukunft noch häufiger vorkommen" (AT, O1, 4, 00:07:53). "Also ab und zu machen wir halt so Inoffizielles – also einfach das – das ganze Team, dass wir irgendwo essen gehen, oder auf ein Getränk am Abend, oder... Ja das kommt ein paar mal vor. Ja" (AT, O2, 6, 00:14:41).	The statement describes a meeting somewhere outside the office where two or more team members spend time together and engage in social interaction. It can be a spontaneous, or arranged meeting. If the activity took place at a business trip, the statement has to be categorized as C2.1.5. If the use of a communication tool is mentioned a paraphrase has to be added to C2.2.1, C.2.2.2, or C2.2.3 depending on the respective medium.

Table 4: Excerpt of the coding guidelines of category *Social interaction (C2.1)*

After the coding guidelines were completed with a trial run, the first real processing of the text begins. All sections that apply to one of the categories, the so-called references, have to be highlighted. Mayring (2008) points out that it is important to keep the evaluation unit in mind. He further recommends denoting the references on paper with a pen. This, however, can be accomplished more efficiently with a normal text-processing program, or special content analysis programs. Commonly used programs are for example ATLAS.ti, MAXQDA and Nvivo. This research project only contains 20 interviews, therefore the usage of one of these programs would have exceeded the frame of this thesis and Microsoft Excel has been used instead.

All 20 interviews were read carefully and the relevant text sections have been copy pasted into an Excel table. To make each paragraph identifiable columns with the respective country, the organization, the team id, the participant's id, and the time stamp have been added. Examples for this code can be found in Table 4, where each anchor example is characterized that way.

The next step according to Mayring (2008) is to valuate the references and to assign them to the appropriate category. This is achieved by means of the coding rules. For ambiguous and inconclusive references coding rules have to be added or edited. Thus the coding guidelines have to be updated continuously. Particularly clear and definite references have to be marked as anchor examples. The following statement, for instance, serves as anchor example of the subcategory *Documentation for the whole team (C1.1.2)*. “Es gibt einen gemeinsamen Space wo Dokumente abgelegt werden. Ja, das soll natürlich möglichst aktuell sein” (AT, O2, 6, 00:05:18).

The assignment of the references (coding) has also been performed in Microsoft Excel by adding columns with the categories and characteristics to the previously mentioned table. After all references have been assigned uniquely, a generalization and reduction is performed to be able to formulate general statements that summerize the content of each category. These statements were then used to draw the conclusions presented in the following chapter.

3. Discussion

Shared context and shared identity are often mentioned in one breath, but as the results of the interviews show, they are influenced by different factors and describe different aspects. Shared context refers to the operational perspective and the mutual understanding, while shared identity describes the relationship aspect. Shared context and shared identity thus relate to the impacts of communication of Te’eni’s (2001) cognitive-affective model. It is legitimate, and actually very important, to study both as separate and individual concepts. Nevertheless, as the results show, a shared context has a very positive influence on the shared identity. Kimball and Rheingold (2000) note that a shared physical space can generate shared identity and mention the campus or town square as examples. By definition, distributed teams will not benefit from these findings because they are not co-located. However, the interview results show that a common goal is a very important part of a shared context and actually seems to have a greater impact on the shared identity than the shared physical space. “Es ist schon so, dass man sich auf jeden Fall mehr als Team fühlt mit den Leuten mit denen man zusammenarbeitet als mit jemanden mit dem man einfach nur im Zimmer sitzt und komplett was anderes arbeitet” (AT, O1, 1, 00:22:31). In the other direction, only an indirect correlation exists. By developing a shared identity, the team members will communicate and get to know each other better, which, in turn, will have a positive impact on the shared context.

The results for the two organizations are very similar. However, the members of organization 1 reported more difficulties with documentation for the whole team, and official events seemed to be more common at organization 2. They also used slightly different tools, but except for that there were almost no differences between the results for the teams of organization 1 and organization 2. Since both organizations are technical companies and software development teams were questioned, these findings indicate that the results might be generalizable for the whole IT sector. A sample of only two different companies is not big enough, though, to draw any final conclusions.

In the following, the results will be reviewd and each research question will be answered directly and discussed in detail.

RQ1a: Does communication facilitate the development of a shared context in teams with flexible work arrangement? If yes, how?

Yes, communication influences the development of shared context in three ways:

1. Information exchange provides the necessary platform for building shared context.
2. Certain communication tools support the development of shared context.
3. To know each other fosters the development of shared context. To get to know each other you have to communicate.

Meetings are the most important and most effective way of information exchange. The team members benefit from the face-to-face communication and appreciate the daily Standups, where every team member says what they are currently working on in just a few sentences. That way the team members are always up to date and misunderstandings are very rare. The amount of spontaneous informal communication is a lot higher than written conversations between team members. This indicates that more information is exchanged between co-located than between distributed team members, which can lead to unbalanced information between those two groups. Whittaker (1995) as well as Bos et al. (2010) reported in their studies that people who are co-located communicate on a more regular basis. It seems like the ICT technology has not been able to change much in terms of integrating remote team members. The documentation for the whole team is challenging. The tools for good and consistent documentation are available, but the team members do not take the time to document, to organize, and to maintain the shared space. Some participants reported that there are too many different options and tools for sharing documents, which leads to general confusion. Therefore they wish for a person who would only be in charge of the documentation and for maintaining the shared space. This would probably not be a feasible solution for many organizations. Thus, the teams should consider formulating clear rules about how to document what, where to document it, and actually comply with those rules.

Face-to-face communication is by far the most important channel for developing shared context. However, communication tools supporting synchronicity are useful as well. Being able to share the desktop seems to help a lot, as most respondents prefer the document view to the facial view. The synchronous multipurpose tools are therefore very beneficial for building shared context between distributed team members and are able to support high availability. These findings fit the theory of media synchronicity in which Dennis et al. (2008) state that communication media which supports high synchronicity is especially relevant for convergence processes. However, most tasks need conveyance and convergence processes and thus the communicators profit from a variety of communication channels, as provided by synchronous multipurpose media. Each team is using at least one collaboration tool, but they are all rather frustrated by them because simultaneous work and versioning does not work very well. Multiple interview respondents said they wish they were allowed to use Google Docs because it is superior and offers great usability. Already in 1963, Luff, Heath, and Greatbatch reported that computers are a great help when working collaboratively on a single document, but that synchronous collaboration is very insufficient. It is hard to believe that this issue still remains unresolved.

Certainly the communication between people who know each other is more efficient. They are better able to cooperate and can better work together. And as one participant put it, the mutual understanding between two people not only depends on the communication in that particular situation, it is based on all the communication that has taken place between those two up to this point. "I hesitate to say that it has so much to do with communication in that moment as it has to do with what is learned from all the communication between those two people and their shared experience" (USA, O1, 13, 00:32:05). Since knowing each other has a positive impact on the development of a shared context distributed teams should consider organizing a face-to-face kickoff when they first start working together. Haywood (2000) has also suggested this. If such a kickoff is not possible the team members will have to meet each other electronically. However, they should still take the time to exchange some personal background before they start working. It is important to keep in mind how much first impressions matter when we meet someone new and that with computer-mediated communication, it is harder to develop trust and more difficult to correct a bad first impression (Bos, et al. 2010).

RQ1b: Does communication facilitate the development of shared identity in teams with flexible work arrangement? If yes, how?

Yes, communication influences the development of shared identity in three ways:

1. Social interactions provide the necessary platform for building shared identity.
2. Certain communication tools support the development of shared identity.

3. An open communication environment and knowing each other fosters the development of shared identity. To get to know each other you have to communicate.

Hinds and Mortensen (2005) were right in assuming that spontaneous communication helps to develop shared context and shared identity. Running into each other in the hallways, at lunch, or at a coffee break provides the most opportunities for social interactions, which are used by most of the team members to chat and catch up with each other. Informal communication really is, as Fay (2011, p. 2014) calls it, the “social glue” of the workplace. On business trips, team members are exposed to each other for periods of time and some reported that these are the occasions where you get to know your colleagues the best. Official events, like a team dinner, bowling night, or a laser tag tournaments are very much appreciated by all participants. Some respondents even said that those organized events are the only occasion where they ever chat and spend time with their colleagues.

Face-to-face communication is by far the most important communication channel when developing shared identity because no other medium is able to transmit personal aspects as well. However, synchronous multipurpose tools are occasionally used to chat with remote colleagues and can therefore help them build a shared identity.

An open communication environment fosters the development of shared identity because everybody can speak their minds, which helps them to find themselves and to reach mutual understanding. Knowing each other also has a positive influence on the shared identity. Because it makes you feel more secure with each other, you are better able to understand each other and more willing to help.

RQ2a: Are there differences between the Austrian and the U.S. teams when developing a shared context? If yes, which?

The Austrian and U.S. teams use very similar tools, but have slightly different expectations in doing so. For example having to ask for information that you did not receive automatically is perceived as something normal and works well in Austria. In the USA the interview participants said that they hate to have to ask for information because they feel like the others are trying to keep it secret. Thus everything should be openly shared without having to ask for it. This might be one of the reasons why Austrian participants reported that their American colleagues add people to mailing lists who do not really have anything to do with the topic. For Austrians this was distracting because they received many, for them, uninteresting emails. “Und wenn E-Mails schreibt, schreiben die Amerikaner meistens an so viele. So viele kriegen das E-Mail, auch die Leute die nicht unbedingt beteiligt sind” (AT, O2, 7, 00:31:08). Furthermore, one participant pointed out that Austrians and

Americans seem to have different expectations when writing and reading emails. While Austrians start with an introduction, Americans expect to read the most important part of the message at the beginning.

> Beim E-Mail schreiben versuchen die Amerikaner die Punkte die wichtig sind vorne zu schreiben, und nicht so wie wir das machen. Wir fangen mit einer Einleitung oben an und dann sagt man was Sache ist im Laufe des Mails. Ja und sowas wie top-down. Die Amerikaner haben bottom up. Wenn der Amerikaner die erste Zeile liest und er nicht klar kommt, dann lässt er alles liegen (AT, O2, 7, 00:31:08).

RQ2b: Are there differences between the Austrian and the U.S. teams when developing shared identity? If yes, which?

In Austria, as well as in the U.S., social interactions are more often initiated by team members (bottom-up) than by people in leadership positions (top-down). In the American teams, however, the top-down occasions are almost as important as the bottom-up ones and for multiple respondents, those are actually the only times where they chat with their colleagues. One participant, for instance, said that it would be nice to do more as a team, but it is up to the manager to organize something and to pay for it. “Occasionally we have team meeting and go out for lunch or something, but is up to the manager, you know, how she wants to spend her money” (USA, O2, 20, 00:10:39). In Austria, there are also organized events, but the team members often just take the initiative and organize something themselves.

The research was successful in answering the research questions and it provided interesting results. Naturally, some limitations have to be mentioned. First of all, some of the US American respondents felt uncomfortable talking with an Austrian interviewer about their experiences with Austrian coworkers. Therefore, the conversation was not as open and some relevant information might not have been revealed. Future research should consider using multiple interviewers with respective cultural backgrounds. This could lead to bias due to different interview styles, but might provide more confidence for the respondents.

Due to the limited time and resources, only a sample of 20 people from two countries and two companies were interviewed. A much bigger sample would be needed to be able, however, to draw significant and general valid conclusions about the influence of the national and organizational differences on shared context and shared identity. Furthermore, only the co-located part of each team was questioned because of the financial limit and time constraint. Their answers still provided interesting insight in the everyday life of distributed teams. For future research, however, it would definitely be interesting to also interview the remote team members.

Finally, only 10% of the references have been double coded. In order to obtain more accurate about the intercoder reliability, a bigger sample would have been needed. However, it can be said with certainty that a shared context and shared identity have a positive impact on teams by helping them to overcome difficulties and to improve their collaboration. Consequently, it should be the goal of every team to build a strong shared context and shared identity and for every supervisor to foster both.

Based on the results discussed above, the following guidelines for future GDTs were developed. They are intended to support and enable members of such teams and make developing shared context and shared identity more achievable, which will in turn improve their collaboration.

Guidelines for future geographically distributed teams:

1. **Organize a face-to-face kick off.**
   Face-to-face communication is important for building shared context and shared identity, and people who know each other are able to communicate more efficiently in order to work together in a better way. Therefore it is highly recommended to organize a face-to-face kick off when the team first starts working together. All the team members should be brought together in one location, for example a hotel. This provides opportunities for team building workshops, but also to discuss project related topics face-to-face. Furthermore, there should be enough time for the team members to get to know each other personally in a more informal setting, for example by offering sport and leisure activities, having dinner, or going out.
2. **Discuss cultural experiences and expectations openly, and define a common communication strategy.**
   The cultural and national background influences the communication style and expectations. In an international team it is thus very important to discuss previous experiences openly and friendly to be able to find common solutions and to define a common communication strategy. For example it should be defined how information will be shared, who will be included in which mailing lists, and who will have access to which artefacts and shared platforms. This discussion is best done in person at the face-to-face kick off.
3. **Chose a limited number of communication media.**
   Multiple communication media provide the same communication channels. Especially synchronous multipurpose media offer different channels, such as chatting, video conferencing, calling and sharing the desktop. It is therefore redundant to use to many different media and might lead to misunderstandings. By choosing a limited set of tools communication will become easier and clearer. The time to check for new messages will be reduced because less channels will have to be checked and if people need to go back in a conversation and look

something up they will be able to find what they were looking for quicker. It is recommended to pick one synchronous multipurpose tool, one team collaboration tool and one project tracking tool in addition to face-to-face and email communication.

4. **Define rules about what to document, where, and how.**

   As previously mentioned, too many different tools can lead to confusion about what to document where and how. However, even if only one tool is used there might be multiple options for sharing information. Using the program *Confluence*, for example, one can create a blog entry, participate in discussions, create files, and much more. Thus it is important to define clear rules on how to document, where to save it, and how to label the artefacts in a meaningful way. For recurring artefacts, such as meeting protocols, it is recommended to create templates. The compliance of these standards and rules has to be ensured.

5. **Ensure an open communication environment.**

   For a shared identity an open communication environment is very important. The team members have to know that they can always speak their mind and share if something is bothering them. A straightforward communication will also be beneficial for collaboration. Standup meetings provide good opportunities for open discussions, but the manager, or team leader has to ensure a flat hierarchy where everybody feels valued and is welcome to speak up. Such an open communication environment will only be possible if all team members respect and value each other.

6. **Mandatory language training.**

   English is the standard language for international teams. A common language is the basic prerequisite for collaboration. Although today English is tought in school in most countries around the world, the language skills differ considerably. Voluntary language training, for all who feel they need to improve their English, is offered in many organizations, however they are not very well attended. People seem to overestimate themselves, or simply do not see how beneficial better language skills would be for them and their colleagues. Therefore mandatory language training is recommended for everybody who is not a native English speaker. In terms of team moral it would also be advisable to provide language training for the native English speakers in a second language. This could help to raise awareness on the effort and accomplishments of the non-native English-speaking colleagues and thus maybe increase patience and mutual respect.

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