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Influence of cultural factors on establishing trust within Global Virtual Teams

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Abstract

To have virtual teams work as efficiently and successfully as a face-to-face team has been labeled by managers and scholars as a difficult problem. Because of geographical dispersal of team members it is more difficult to establish a level of trust sufficient for cooperative work, a reason cited is the lack of social cues as the information technology used for communication is often not face-to-face. As virtual teams are separated by long distance and multiple time zones their members often originate from different cultures. Research so far has focused on the influence of trust or culture on the functioning of virtual teams, but little of it aims to establish a link between the two. This paper aims to close that knowledge gap by proposing a conceptual framework based on that developed by Greenberg et al. (2007) and map factors indicating cultural differences with those that are conducive for establishing trust in virtual teams.

Keywords

Cultural dimensions; Global virtual teams; Team development; Team life cycle; Trust;

1. Introduction

With the advent of the new global economy that has its basis in information technology there has also been a shift in the way people communicate. Besides using internet based communication technology for personal use they are more frequently used by members of organizations to work together on projects. Such teamwork can be carried out while the members are separated by thousands of kilometers as well as multiple time zones. Team members that work together using groupware technology such as email, chat boxes and Voip never need to meet each other in person. We call such collaborative groups Virtual Teams (VT). VTs have the advantage of forming as needed to carry out specific tasks, but they are hampered by the absence of social cues stemming from a lack of face-to-face communication. As such VTs may find cooperation more difficult due to cultural differences and mistrust regarding the capabilities that members express about each other.

1.1 Scope

For the purpose of this study we have limited the scope of cultural differences to the level of national culture and not business culture. This study also does not take into account functional culture (e.g. IT professionals have a different culture than business professionals).

We also look exclusively at Global Virtual Teams (GVT), meaning those groups of people that are divided by distance and multiple time zones. GVTs are differentiated from ordinary VTs because of a heterogeneous composition of team members resulting in cultural differences. Although the terms GVT and VT can be used interchangeably (Yusof & Zakaria, 2012) in this report the term VT is used.

1.2 Goal

This study hopes to shed light on whether national cultural differences among team members have any influence on trust and performance of VTs. For each topic; cultural aspect in VTs and trust in VT there is a considerable body of literature. Yet this is not the case for both culture and trust and their influences on VTs. This literature study attempts to investigate both topics and discover whether they have any influence on each other regarding the performance of VTs.

1.3 Chapter overview

In Chapter 2 we introduce our main research question as well the research subquestions that are used to answer it. We conclude by briefly stating why we performed a literature study to answer those research questions. In Chapter 3 we give an background overview of studies performed on VTs. We discuss what the formal definitions are of VTs, what we mean with trust and culture. In Chapter 4 we discuss what the barriers and requirements are for forming trust in a VT while Chapter 5 discusses the consequences of differences of culture within VTs. In Chapter 6 we try to combine these two topics and determine what the consequences are for culture and trust formation within a VT. In Chapter 7 a conceptual framework is presented about the relation between trust and culture in VTs. We end the paper with Chapter 8 detailing our conclusions.

2. Research

We hope to prove that there is a link between cultural influences and the level of trust that is established within a VT. As a result it should be possible to at least get an idea from the conceptual model that we hope to define how managers can improve trust by taking into consideration cultural differences in the formative stages of a VT.

2.1 Research questions

The main research question for this paper will be:

How does culture influence trust in virtual teams and how can this knowledge be used to improve trust?

To answer the main research question, three subquestion are derived from this main question, providing more concise questions about a specific aspect of trust and culture in virtual teams, the three subquestions are;

1. *What are the barriers and requirements for trust within virtual teams?*
2. *What are consequences of culture difference for the trust within virtual teams?*
3. *How to improve trust within virtual teams with regards to the culture of the participants?*

2.2 Research methods

In order to answer the aforementioned research questions, a literature review was conducted. Scientific literature on VTs, trust, culture and a combination of these three topics were analyzed to answer the three subquestions. The results of the literature review and the answers to the subquestions were used to draw a conclusion and answer the main research question.

3. Literature background

In this chapter we discuss the background literature on VTs, trust in VTs and culture in VTs. We define the definitions used for each topic below and use those for the rest of the research.

Virtual teams

After studying the established literature many definitions of VTs can be used. Our definition is taken from a paper of Jarvenpaa et. al (1998), which is considered a seminal paper on the establishment of trust within VTs.

“A global virtual team is an example of a new organization form, where a temporary team is assembled on an as-needed basis for the duration of a task, and staffed by members from the far corners of the world. In such a team, members (1) physically remain on different continents and in different countries, (2) interact primarily through the use of computer-mediated communication technologies (electronic mail, video conferencing, etc.), and (3) rarely or never see each other in person.”

VTs are thus just like traditional project teams, except that they do not share the same physical space and time. Keyzerman (2003), extends this definition with the following caveat. *“As members of the virtual team most of the time live in, or come from other countries, they are thus culturally diverse.”* It stands to reason that national culture is not the only form of culture that can cause friction as a VT can exist of members of different organizations with shared business interests or customers. For the purpose of completing the knowledge gap the scope of this paper will focus on national cultures.

Multiple reason are given for the existence of VTs. They range from arguments such as; persons who have to execute tasks together are able to communicate without being in the physical same place, which reduces travel costs significantly. Steinfield (2002) mentions other benefits of VTs; organizations can work around the clock, as members of the same global organization live in different time zones. Real estate costs can also be reduced, as team members can stay in their own office or at home. Suchan and Hayzak (2001) add that members of a VT are more likely to be creative, which is regarded as positive, because they are more free from organizational constraints.

Trust in virtual teams

Establishing a good working relationship with team members on a project is made more difficult when they cannot meet in person and thus miss important social cues (Keyzerman, 2003). This is made even more difficult with employee’s reduced loyalty to a company and frequent career changes, a development that is increasing in the global economy.

Importance of trust

According to Reina & Reina (1999) business is conducted through relationships and trust is the foundation of relationships. The increased complexity of a globalized economy has made it more difficult to achieve and maintain trust (Lane, 1998). Reina & Reina (2006) further state why trust is so important to an employee; it promotes creativity and critical thinking, it induces employees to

work harder and is overall considered a better motivator than fear. Sako (1998) concludes that trust is 'an important component which makes partnerships, strategic alliances, and networks of small firms successful'.

As employees are not only tasked with working in VTs but also in face-to-face cross-functional teams and temporary work groups, it has been shown that trust promotes informal cooperation but primarily reduces negotiation costs (Williams, 2001). These negotiation costs are also referred to as 'agency costs' by Aubert & Kelsey (2003). They define agency costs as all the measures necessary for those parties involved in the VT to guarantee that the other parties carry out the services that were agreed upon. Such measures include contractual clauses (surveillance, incentives) and lost residuals resulting from imperfectly coordinating and motivating the contracting parties. All these measures are very expensive and the establishment of trust can reduce expenditure on monitoring and controlling.

Definition of trust

Mayer et al. (1995) definition of trust encapsulates the dilemma faced by virtual teams. They defined trust as: "*the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.*" (p. 712)

Giffin (1967) gives a definition of what he believes trust should entail for a person.

1. *Relying on another;*
2. *Risking something he values, and;*
3. *Attempting to achieve a desired goal.*

Trust is thus a necessary ingredient for team members to become committed to a project beyond being compelled by fear to perform a job.

Mayer et al. (1995) also define four factors on which trust is based: Ability, Integrity, Benevolence and Propensity. The first three factors have to do with the trustee, while the fourth factor is more about the trustor himself. If the trustor sees the trustee as capable, honest and caring, the first three factors are positively fulfilled. A trustee's propensity to trust is the general willingness to trust others. Differences in propensity to trust by team members are caused by developmental experiences, personality types and cultural backgrounds (Hofstede, 1980).

How to develop trust

Some scholars have stated that developing trust in VT is either very difficult or outright impossible. A critical factor necessary for trust is face-to-face communication. Handy (1995) specifically mentions that 'trust needs touch' in that people should meet in person to establish the processes in which they will cooperate. This will also establish boundaries, leaders and the ability to learn from one another.

Interaction between people facilitates future cooperation, shared experience and cooperation. Platt (1999) states the necessity for 'contracting discussions' in which team members share expectations with one another and thus establish common goals and awareness.

Renson-Amer and Sticker (2003) go one step further and state that team members should develop a positive reputation and show competence. By establishing to other team members that they are reliable, this trust establishment can smooth over problems that may occur in a dispersed team due to communication breakdown.

Jarvenpaa et al. (1998) theorize that VTs consisting of members with known high ability exhibit what they call 'swift' trust. First outlined by Markus (1994), it is used by team members to form a group bonding that in all likelihood would last just for that particular project. Should they cooperate again later on, than the trust is built on the memory of member ability.

For VTs consisting of members with little ability and no prior experience, trust is hard to establish without proper communication. Such teams can end their cooperation on a high level of trust only if team members make up for the lack of social introduction during the formative stages. Such teams exhibit a tendency to establish and follow strict procedures for tasks and deliverables. Also, leadership emerges over time and the interpersonal relations remains strictly professional. It does become a task for teams with either little or high initial trust to keep the level of trust throughout the project. More informal interpersonal relations are thus more likely to occur when members of VTs have already worked together before on another project (Jarvenpaa & Leidner, 1999)

Culture

Hofstede (1980) defines, in his seminal work, culture as "*the collective mental programming of the people in an environment*". Culture is about groups of people and not individuals, these groups and their culture can vary in makeup from family level, an organization and to that of a country. Cultural dimensions identified by Hofstede include 'Power Distance Index' which refers the level at which people expect power to be distributed unequally. Culture exists in the minds of the members of the group and this translates into how and what actions are performed. This makes it difficult to change culture.

Culture in virtual teams

Culture affects VTs in the way individuals (members of the VT) act upon information. This manifests itself predominantly in the communication within a VT, the possibility of a language barrier in multilingual teams and the possibility of misinterpretations. As an example, the more formal cultures (national cultures or professional cultures) emphasize and honour deadlines more than less formal cultures which can lead to conflicts within the VT.

The benefit of having multiple cultural backgrounds within a VT is that different cultures have different approaches and views of a problem, leading to greater variety of possible solutions to tackle that problem (Kayworth & Leidner, 2000).

One dimension of Hofstede is whether a culture is individualistic or collective. Individualistic culture regards the persons own needs, values and goals as more important than that of the group while in collectivistic cultures it is the other way around. Team members with an individualistic culture are more likely to join and exit new groups, are less likely to be influenced by other team members and communicate more openly and precisely, resulting that these individuals are more ready to trust other members of the VT when communicating non-face-to-face (Jarvenpaa et al., 1998). Another dimension of Hofstede such as Uncertainty Avoidance Index is about a culture

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tolerance for uncertainty or ambiguity. For working within VTs it is vital to know how other members will react to situations where the goals, scope and rules are ill defined.

4. Barriers and requirements of trust

In this chapter we describe barriers and requirements for the development of trust within VTs.

Kimble et al. (2001) established that only a small proportion of VTs reach a satisfactory level trust for proper group performance. Barriers they mention include;

- Ambiguous identity; many of the basic cues about personality and social roles are lacking. This can become the first problem for establishing trust as it causes teams to fail to organize an effective protocol for communication which in turn causes a lack of focus on the team's goals.
- Team members do not want to share 'work-in-progress' deliverables. This can be seen with programmers not wanting to release unfinished or untested code.
- The effort and time necessary to arrange for the logistics of proper communication is enormous.

Proposed remedies include;

- Develop new attitudes that will allow members to share work deliverables more easily.
- VTs must be considered in the broader context of an organization and business environment. Organization must strive to bring the same conditions that make internally operated teams successful to their outside relations.

Kimble et al. conclude that they do not believe that there exist different kinds of trust (no mention is made of 'swift' trust) but instead that face-to-face meetings brings over the social-based trust from the real world into the virtual world. The paper from Kimble et al. derived its conclusion from case studies performed on actual VTs. As such it is lacking a theoretical framework that can be used to explain trust within VTs.

A dissenting view is offered by Greenberg et al. (2007) which states that trust can be either formed based on rational or emotional choices. The establishment of a trust bond goes through five stages with only the second (after roles have been assigned) seeing the use of 'swift' trust. The latter stages see trust change based on rational 'cognitive' factors as team members have to work together or scrutinize each other work.

Pinjani & Palvia (2013) suggested that team members who have remained in contact for some time discover each other's diverse backgrounds, this could negatively impact mutual trust and knowledge sharing. Task interdependence could have a positive effect on mutual trust and knowledge sharing if it is done intensively by team members. This intensive cooperation quickly dissolves prejudice about other members diverse background. However, when there is little task interdependence, team members essentially pretend to work alone thus weakening mutual trust and knowledge sharing. Managers of VTs should also understand that diversity can come in many forms. The writers suggest training to help with relationship building as an essential first step, for both team members and managers. The authors conclude that managers should select appropriate technology that promotes parallelism, transparency, and sociality.

Sarker et al. (2011) deviate from other research in VTs and what they consider attribute-based research and instead focus on what they call the social network approach. This approach is based on the premise that individuals do not act alone but everything they do is in context of their social network. They further postulate that people with a better position to obtain information and other resources are better able to integrate into VTs. They refer to this as the structural position.

The authors develop several models of social interaction that they think are best suited to develop trust. Their 'mediation' model is the best fit. Its premise is founded on the idea that people who can communicate a lot and do so openly have a better chance of being trusted by other people. Thus the extent of communication that a team members engages will affect other members perception of his trustworthiness (Sarker et al., 2011).

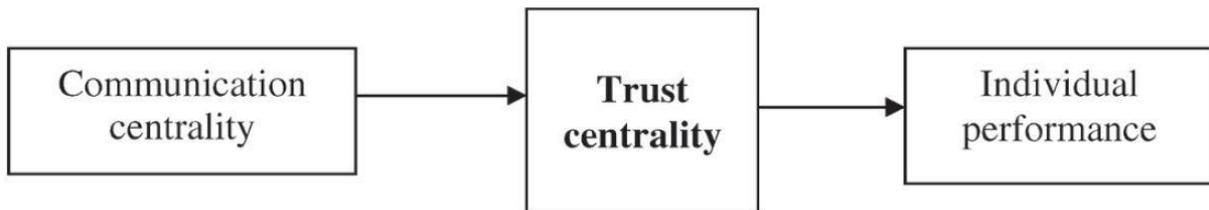


Figure 1: The mediation model of Sarker et al. (2011)

Barrier and requirements for trust thus depend on many different factors such as personality, communication technology used and the amount of communication that individuals perform within a VT. Yet at the same time researchers disagree on fundamental factors such as when 'Swift trust' occurs.

5. Consequences of culture differences

In this chapter we describe the consequences of cultural differences on VTs, both the positive and negative effects. After clarifying what the effects of cultural differences on VTs are, we elaborate on what these differences mean on trust in VTs. The final topic of this chapter is how cultural diversity influences media selection and what consequences this has on VTs.

Positive effects of cultural differences

Cultural differences within a VT can result in several positive effects on the VTs performance, Shachaf (2008) shows through empirical research that cultural diversity improves the decision-making process and the performance of the VT when compared to a homogeneous, or cultural uniform VT. The outcome of decision-making is improved due to the leveraging of different knowledge and skill bases from the cultural diverse VT members. Another reason for better decision-making is that cultural diverse team members have different cognitive styles, semantic networks and collaborative behavior, resulting in greater diversity of generated ideas (Wang, Fussell & Cosley, 2011). These cultural effects share similarities with the effects of trust, Reina & Reina (2006) state on the importance of trust to an employee that trust promotes creativity, critical thinking and that it induces employees to work harder. Trust is an important component which makes partnerships, strategic alliances, and networks of small firms successful (Sako, 1998), this can be linked to team member that have a more individualistic cultural background that makes them more likely to join and exist new groups and results in more open and precise communication (Jarvenpaa et al., 1998).

Negative effects of cultural differences

Cultural differences within a VT can also have a negative effect on communication, research done by Kayworth & Leidner (2000), showed that over half of the observed teams were less able to communicate ideas and coordinate the projects due to language barriers resulting from cultural differences. These linguistic differences created problems when team members tried to decipher communication send from other team members with a different cultural background. This resulted in loss of information and miscommunication. Kankanhalli, Tan & Wei, (2007) reported in their empirical research, that all three of their researched VTs experienced conflicts related to communication, due to cultural diversity that is conveyed through language. Shachaf (2008) also mentions the negative impact of cultural differences that manifests itself in communication difficulties. Lack of accuracy in communication increased the time that was needed for coding and decoding messages for both native and non-native speakers of the chosen language. Related to this problem was the fact that interaction costs were higher when there was communication between different cultures. Furthermore problems are not only related to verbal communication, but also to nonverbal communication, e.g. different (negative) interpretation of body language based on culture (Shachaf, 2008) and the loss of voice inflections and gestures (Kayworth & Leidner, 2000).

The difference between polychronic (doing several things at the same time) and monochronic (one thing at a time) cultures (Shachaf, 2008) or informal and formal cultures (Kayworth & Leidner, 2000) has a negative effect on the team. Team members with a polychronic or informal cultural

background view time and deadlines as more fluid compared to the opposite cultural backgrounds, thus resulting in friction between the team members.

Cultural diversity can lead to conflicts within a team, both on a relationship level, as well as conflicts on a task level. There is also national diversity, which can manifest itself through negative stereotypes about other members nationality. Thirdly there are broader cultural differences like individualism versus collectivism or masculinity versus femininity. (Kankanhalli, Tan & Wei, 2007).

Impact of cultural differences on trust

Cultural differences also have an effect on trust, Zolin, Hinds, Fruchter & Levitt (2004) present results that support their hypothesis that “When there is cultural diversity between the trustor and the trustee, the trustee will perceive the trustee as less trustworthy than when the trustee belongs to the same culture.” This hypothesis is further supported by other research, since “...the tendency of team members to perceive diversity to be negative.” Also cultural and language differences negatively impacted trust due to miscommunication. (Shachaf, 2008) These results show that diversity is considered negative in general and this translates to cultural diversity, resulting in less trust compared to cultural uniform VTs.

Cultural diversity and media selection

Cultural diversity also influences the communication methods used by members of a VT. Members with a similar culture use a broader range of media channels compared to intercultural communication. Cultural differences thus limit the selection of what media to use for communication (Shachaf, 2008). Kayworth & Leidner (2000) showed in their research that multiple types of media used by members of the VT when communication with each other resulted is much more satisfying. This is because the wider range of media that is used creates a richer form of communication.

The use of ICT communication negates some of the negative impact of culture differences, especially when asynchronous (e.g. email) communication forms are used, due to the fact that cultural differences are hidden when communication this way and the sender of the message has ample time to draft and review their messages. Also the more formal method of communicating via email compared to teleconferencing or chat contributes to this. The contrasting fact here is that ICT communication negates some of the cultural differences and multiple forms of media improve communication within a VT, cultural differences also limit the selection of media that is used within a VT.

6. How to improve trust in perspective of culture?

In previous chapters, barriers and requirements for trust in VTs and the impact of culture in VTs are analyzed. This chapter will elaborate on these previous chapters by suggesting recommendations for improving trust in the perspective of culture differences. Most discussed literature seems to be written especially for managers, as they are responsible for VTs and thus responsible for enabling trust.

Establishing communication norms

Malhotra & Majchrzak (2004) contribute in their paper about multi-unit VTs which conduct interdependent activities mainly through electronic media with several best practices of highly successful team. A very important aspect is the establishment of communication norms. At the moment that all team member discuss and decide about communication aspects as decentralization of message, frequency of communication, use of language (prevent use of local jargon), use of IM language (Greenberg et al., 2007) and rules of feedback, each member knows what he is expected to communicate and knows what he can expect in communications. An example of the need of these communication norms is given by Vinaja (2003). He mentions that Americans have a “need for speed” and like the efficiency when communication by e-mail. They also like fast responses. This compared to Japanese, which are correct and proper, used to carefully craft their responses. Without establishing communication norms at the begin of a VT with members from different cultures, conflicts can arise which influence the performance of a VT negatively.

Training and introduction

To mitigate the aforementioned effects in Chapter 5 of cultural differences on trust there is a need to create awareness of the different cultural backgrounds of the team members by having team-building exercises and training of the team members (Kayworth & Leidner, 2000). The training should happen during the establishing phase of the VT, training should focus on the different communication methods that are available to the VT and on the importance of creating and delivering messages and opinions to VT members to prevent miscommunication that comes from cultural differences (Greenberg et al., 2007).

A second important element is a proper introduction of all team members about their cultural and functional background, their prior experience with VTs, why they are chosen to take place in team, what their function in the team is and why that function is important for the success of the team. (Greenberg et al, 2007). The better team members are introduced to other team members, the less is unconsciously filled in with assumptions concluding from their functional or cultural background which can lead to mislead interpretations of a members’ behavior and can lead to a decrease of trust. Important are also the external cues available from which team members can derive information about other team members. Third parties or available documentations are examples of these external cues.

Control mechanisms

When members of a VT can see and control what other team members efforts are, trust is increased (Aubert & Kelsey, 2003). Stakeholders of co-workers can have the desire to keep an eye on the VT, but can be expensive and time-consuming. Also, this attitude can give a sign of disrespect for cultures for which performance measuring is inappropriate and as such can influence the team spirit negatively.

Simple examples of control and observation mechanisms are a list of who is online, data captured about which documents were edited by which team members at what time, which members have seen comments and messages. A recent example is the feature of Google Docs whereby you can see who is also viewing this document. You can click on his or her name, by which you will go to the place in the document where the cursor of the other writer/reader is. This feature enables people not only to see who is online, but also who works on which part and what his progress is. These forms of transparency can be important to develop trust in VTs (Aubers & Kelsey, 2003). The best practices of VTs from Malhotra & Majchrzak (2004) confirm these control mechanisms by presenting the three best practices regarding access to knowledge within a team: ensuring that each individual know others' roles, responsibilities and expertise, ensure that each individual's progress is visibly displayed, ensuring that knowledge about each individual's' decision process is available. Relating this to the barriers that are stated in Chapter 4, control mechanisms provide a means to overcome these barriers allow a VT to reach a satisfactory level of trust.

Carefulness

Greenberg et al (2007) discussed several recommendations for managers to enable trust in each stage of the life cycle of VTs, and calls for careful compositions and expression of ideas and opinions when members are from diverse technical and cultural backgrounds. Joking, kidding or chiding for example can encourage members to conform with group norms. He argues that it can work in face-to-face situations, but that in VTs this can cause members to feel they have lost 'face' and the respect of the team. Besides, the member who is joked about can lose the benevolence towards members which make these jokes, which influences trust negatively.

Reward structure

Greenberg et al (2007) also recommend to implement a cooperative structure instead of a competitive structure, based on the research of Ferring & Dirks (2003). They found that competitive versus cooperative structures influences trust through actions (e.g. information sharing) and perceptions. A competitive reward structure has a negative impact on team members' perceptions of the information sharing and motivations of others, which result in negative evaluation of others' integrity. They found also that a cooperative reward structure has positive impact. A competitive reward structure can negatively influence the willingness to share information. We have seen this in the form of not wanting to share work-in-progress deliverables as a barrier for trust in chapter 4.

7. Combining cultural influences and trust factors

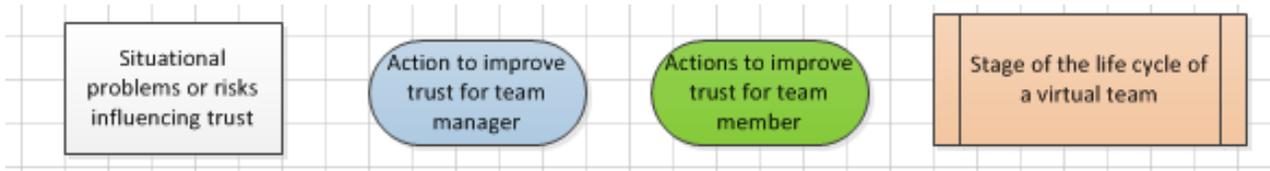
In this chapter a conceptual framework is presented about the relation between trust and culture in VTs. This conceptual model consists of mainly two subjects. The first subject is the barriers and requirements for trust in VTs, which are discussed previously in chapter 4. The second subject is the influence of culture on trust in VTs, which is previously discussed in chapter 5. We try to give our own contribution to this research field by coupling these subjects with each other and think of the logical connections between the element of trust and culture.

The conceptual model is based on the paper of Greenberg & Greenberg (2007), who presented five stages of VTs and the form and characteristics of trust in each of these stages. We used the model of Greenberg & Greenberg to make a complete overview from trust and culture in a VT, ordered by the five stages which a team goes through.

The five stages as presented in of the VT life cycle.

- **1st stage;** the establishment of a team. Team members are introduced to each other and the first instance of trust is established based on the roles of the team members.
- **2nd stage;** the inception. Team members develop 'swift trust' based on external information of team members.
- **3rd stage;** the organization of tasks. During this stage trust is based on cognitive assessments. Members experience more of each other's competence and integrity, and with the help of the manager and a clear communication plan a positive trust bond starts developing.
- **4th stage;** the transition. Members perform their tasks and work together more closely. Through co-working, members will improve their virtual-based relationship and develop a more affective trust whereby the cognitive trusts fades slowly away.
- **5th stage;** the accomplishment of tasks. Affective trust is most important during this stage as it helps team members to help each other and keep up high performance.

Meaning of shapes and colours:



Conceptual model of trust and culture in virtual teams:

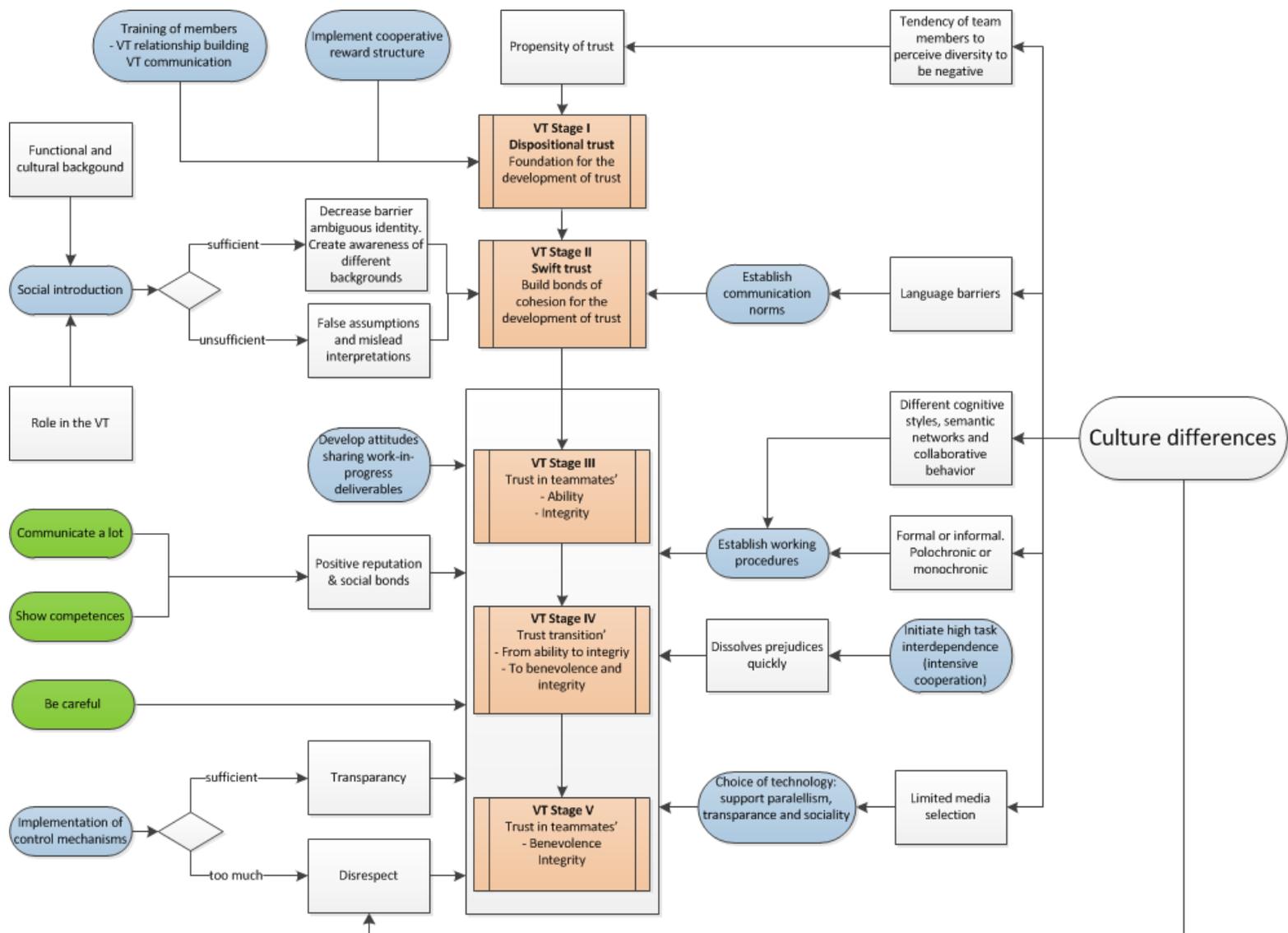


Figure 2: The conceptual model combining trust and cultural factors.

In Figure 2 the conceptual model about trust and culture is presented. The basis of the model is from the five stages of the life cycle of Greenberg and Greenberg (2007), which in turn is partly based on the four elements of trust: Ability, Benevolence, Integrity and Propensity. The five stages or the life cycle are presented in the red rectangles with two added vertical lines. The barriers and requirements of trust are summarized and presented in the left side of the model. The cultural influences on trust are in turn presented in the right side of the model. These barriers, situations or risks influencing trust are represented in white boxes. In several places in the model, actions to improve trust which are discussed in chapter 6 are inserted.

Direct recommendations for team members to undertake or change perceptions which should lead to an increase of trust are presented in a rectangle with rounded corners and have a green colour. Recommendations for managers are presented in a similar shaped box, but their colour is blue. Team managers function also as team members and should therefore act according the recommendations from both the blue and green boxes
Because of readability, we chose to remove the references for all elements of the conceptual model. As all elements of this model are previously discussed in this research, we hope that it still is clear from what the origin of all information is.

8. Conclusions

Cultural differences in VTs affects the trust of each individual. In this conclusion, we answer all three subquestions. After that, a final conclusion is made which answers the main research questions.

Subquestion 1. What are the barriers and requirements for trust within virtual teams?

Barriers mentioned by several authors for the development of trust in VTs are ambiguous identities of team members, which can be caused by an improper introduction of each team member, the desire of team members to not share work-in-progress deliverables and not enough effort performed on arranging the logistics of communication.

Requirements or possible enablers for trust in VTs includes sharing attitudes and communication norms so that each team members knows what he can expect and what is expected from him regarding work-in-progress deliverables, feedback, (frequency of) communication, etc. Once the team has started working and some tasks have been finished, team members are able to see each other's ability to deliver work, which will improve trust.

Subquestion 2. What are consequences of culture difference for the trust within virtual teams?

Cultural differences among team members cause positive effects such as increased performance, improved decision-making process and a greater diversity of generated ideas (the teams are more creative). Negative effects are for example communication problems (through language barriers or different communication norm). Other problems arise when the cultural difference are either as being polychronic or monochronic, informal or formal, collective or individual. When these differences in cultural background exists, team members are likely to think and act different on task execution, which can cause conflict and lowers trust.

Subquestion 3. How to improve trust within virtual teams with regards to the culture of the participants?

Trust in VTs can be improved or enabled by the establishment of communication norms at the start of the team. By training all members on how to perform within a VT, with a particular focus on the cultural differences and consequences and by a proper introduction of all team members will decrease false assumptions which are otherwise made. The groupware which is used can be equipped with awareness mechanisms which improve transparency; team members can see more about the deliverables and progress of other team members, which can reduce distrust. Although, whenever it becomes clear through these awareness mechanisms that team members fake progress, this will logically decrease trust in that person and the manager is forced to interfere. A last recommendation is carefulness. Things that one cultural group sees as appropriate or humorous may end up offending others. Greenberg et al. (2007) state several times in their paper about trust in the various stages of the life cycle of a VT, that one has to be careful in order to not offend or disappoint team members from other cultures, in order to improve trust. .

Our main research question is: "***How does culture influence trust in virtual teams and how can this knowledge be used to improve trust?***". This question is answered by investigating the

consequences of trust in Chapter 5, which elaborates on Chapter 4 which identified several barriers and requirements for trust in a VT. Based on these two chapters, Chapter 6 identifies several recommendations for enabling and improving trust in culturally diverse VTs. Culture influences trust in positive and negative ways, which can have influence of the performance of a VT. In order to improve trust, several techniques such as establishing communication norms or giving proper training and introduction to VTs can be used. To fully answer our research question we have developed a conceptual model in Chapter 7 which can be used as a guide by VT members and managers to allow for better functioning of teams.

Future work

Future research should try and empirically test the influence of culture on trust within VTs using significantly culturally diverse team members. Such a study should also focus on diverse tasks that have to be performed and in a broad organizational setting. So far empirical research has focused on either case studies or VTs within the same organization or service industry. A further research path is testing of our conceptual model that defines the interaction between trust and culture related to VTs.

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