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PERCEIVED EFFECTIVENESS IN ESTONIAN VIRTUAL TEAMS: RELATIONSHIPS WITH TRUST, TEAM COMMITMENT AND EFFICACY BELIEFS

Master Thesis

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Tallinn 2016

I hereby declare, that this thesis in entirely the result of my own work and submitted for the Degree of Master of Science in Tallinn University of Technology. For the present thesis no degree has been conferred on me before in this or any other university.

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" 21 " May 2016

The work meets the stated requirements for master thesis

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"....."....2016

Approved "....."....2016

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ABSTRACT

Perceived effectiveness in Estonian virtual teams: relationships with trust, team commitment and efficacy beliefs

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In virtual environment psychosocial factors are challenged, because of the usage of communication technology, which reduces socio-emotional interaction and according to previous findings impact performance and outcomes of virtual teams. The aim of the current study is to investigate the relations between virtual team perceived effectiveness and team trust, team commitment and efficacy beliefs. As well to study the impact of degree of virtuality on virtual team perceived effectiveness. In this paper paper, the quantitative study of 83 virtual team members in Estonian organizations was conducted to investigate these issues. The hierarchical regression analysis results demonstrate that 56% of the perceived virtual team effectiveness is describable by team trust, team commitment and affective commitment. Building trust have been said to be root cause of the success or failure of virtual teams. And the findings in this study also confirm that. According to SEM results, team trust impacts affective commitment and collective-efficacy beliefs, which overall impacts perceived effectiveness of virtual teams. ANOVA analysis revealed that the degree of virtuality does not impact the perceived virtual team effectiveness. Research limitations, implications and originality are discussed.

Keywords: virtual team, virtuality, team trust, team commitment, efficacy beliefs, team effectiveness

KOKKUVÕTE

Tajutud efektiivsus Eesti virtuaalsetes meeskondades: seosed usalduse, meeskonnale pühendumuse ja tõhususe uskumustega

Anneliis Tali

Virtuaalne keskkond seab psühhosotsiaalsetele faktoritele väljakutse, sest kommunikatsioonitehnoloogia kasutamine vähendab sotsiaal-emotsionaalset interaktsiooni, mis varasemalt tehtud uurimuste põhjal mõjutab virtuaalse meeskonna töö sooritust ja lõpptulemust. Käesoleva töö eesmärgiks on uurida virtuaalse meeskonna tajutud efektiivuse seoseid meeskonna usalduse, meeskonnale pühendumuse ja tõhusususkumustega. Lisaks uurida virtuaalsuse määra mõju virtuaalse meeskonna tajutud efektiivsusele. Antud töös viidi uurimusküsimustele vastamiseks läbi kvantitatiivne uuring 83-s Eesti organisatsioonides töötava virtuaalse meeskonna liikme seas. Regressioonanalüüsi tulemused näitavad, et 56% virtuaalse meeskonna tajutud efektiivsusest on kirjeldatavad meeskonna usalduse, emotsionaalse pühendumuse ja kollektiivse tõhususe uskumuste kaudu. Meeskonna usaldust on peetud virtuaalse meeskonna edukuse põhimäärajaks ning käesolev töö kinnitab seda. Uurimuse SEM tulemuste põhjal meeskonna usaldus mõjutab positiivselt emotsionaalset pühendumist ja kollektiivseid tõhususe uskumusi, mis kokkuvõttes mõjutavad positiivselt virtuaalse meeskonna tajutud efektiivsust. ANOVA tulemuste põhjal virtuaalsuse määr ei mõjuta virtuaalse meeskonna tajutud efektiivsust. Ühtlasi on käsitletud uuringu piiranguid, rakendatavust ja uudsust.

Uurimustöö võtmesõnad: virtuaalne meeskond, virtuaalsus, meeskonna usaldus, meeskonnale pühendumus, tõhusususkumused, meeskonna efektiivsus

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INTRODUCTION

The theme of this research is to investigate perceived effectiveness of Estonian virtual teams. The problem of effectiveness at the workplace has always occupied scientific minds: how to be competitive in a constantly changing environment and achieve the organizational outcomes more effectively and efficiently. For today it is widely known that teams that work well together can achieve more than individual members alone and organizations take advantage of it. Due to the development of technology, during the 21st century, work teams have also taken steps towards implementing computer usage and communication technologies into their team work.

For the world, Estonia is known as "e-Estonia"– a world leader in technology: access to internet is human right, Wi-Fi is a common phenomenon in parks, cafes, trains and there is even a possibility to access free Wi-Fi in forest. ID card has a key role for e-services providing identity authentication and digital signature – online voting in a general election, online pre-filled annual tax return system, where checking the calculations takes about 5 minutes. Estonia has taken governmental initiative to make starting a company easy and little time-consuming. Registering a company takes about 30 minutes with the initial payment (2500€) that does not have to be paid when the company is founded and where e-residency gives an opportunity to run a company online from any part of the world. It has one of the most liberal tax regimes in the world, where entrepreneurs have to pay only corporate income tax on their dividends. State encourages people to start their own businesses, which overall together with the technological development has reached to the point that Estonia has the biggest number of start-ups per capita. Several Estonian start-ups have become a worldwide success and grown into big corporations, such as Skype, Tranferwise, Pipedrive, Fortumo. Today there is a science park Technopol next to Tallinn University of Technology, which aim is to bring scientists and entrepreneurs together and advance technology-based entrepreneurship in Estonia. It houses approximately 200 technology companies and hosts a number of conferences, seminars and other related events which regularly take place among start-up communities. Steps have been taken in Estonian education as well, by 1998 all schools where equipped with computers. From the year 2012 program "ProgeTiiger" started to teach five-years-olds the basics of coding and

within recent years, universities and local IT companies have promoted IT studies by dispensing free laptops and favourable conditions for scholarships.

Rapid evolution of virtual teams as new organizational forms have also negative consequences, the scientific research on the subject has dropped behind their implementation. According to the Web of Science, the keywords for "virtual team effectiveness" give approximately 364 articles (9th of March 2016), which suggests that this topic is relatively new in science. Moreover, the given search results for these afore mentioned keywords do not yield in exact matches, but rather as scattered results. Most of the virtual team surveys have been conducted among student groups (Bordia, 1997; Staples, Webster, 2007). The advantage of research at hand is the fact that it is conducted among virtual team members, who are working today in this turbulent environment, and this further facilitates the external validity of this study. Based on the previous description concerning the development of technology and it's broad implementation in Estonia, the author of this work is on the opinion that Estonia is a fertile ground for research to gain the most up-to-date information about virtual team effectiveness. Due to the limited sample population it is only feasible to draw conclusions from population covered in this research, thus providing the groundwork for more in-depth study on virtual team effectiveness.

The aim of this study is to investigate relationships between perceived virtual team effectiveness and team trust, team commitment, efficacy beliefs. As performance of virtual teams is closely related to empowerment, which has previously been found to be related with trust, commitment and efficacy beliefs (Kirkman, Rosen, 1999). Thus, it is reasonable to study those three variables in relationships with perceived effectiveness together in one study, which has not been researched in this manner before. At this point it is relevant to notify that perceived effectiveness is just as important as objective effectiveness and it is useful to study it to gain behavioral change, although perceived effectiveness includes also objective measures.

The research questions of interest to this study are the following:

1) How team trust, team commitment and efficacy beliefs influence virtual team perceived effectiveness?

2) Does the degree of virtuality have some impact on virtual team perceived effectiveness?

One of the options for future research is to distinguish possible features that impact overall effectiveness in virtual teams and subsequently further improving the identified psychosocial factors in the concrete sample.

Current paper consists of two main parts, theoretical background and empirical findings, and proceeds as follows. The theoretical part starts with giving definition between the blurred boundary between work group and work team and describing the change from collocated teams to virtual teams. The second chapter sets off the essence of the virtual teams: communication peculiarity. The following theoretical chapters shed light on the main variables: team trust, team commitment and efficacy beliefs and their relations within virtual teams. The last theoretical chapter highlights psychosocial factors that are related with effectiveness of virtual teams. The methodological part gives a short description of the used research instrumentation, description of the subject sample and sampling procedure, followed with the data analysis description and the results obtained. The paper is concluded with the discussion of the research outcomes, its limitations, future prospects and implications for practice in human resources.

1. THEORETICAL BACKGROUND

1.1. Change from collocated teams to virtual teams

1.1.1. Description of work group and work team

During the last decade there has been an increase in interest and research on the topic of groups and teams in psychological research. However, there is still definitional struggle to realise what is a work group and what is a work team (Dickson, Guzzo, 1996). According to Alderfer (1977) - individuals in a work group are interdependent to perform tasks and through those tasks the group affects others. Individuals have roles which function as expectations for themselves, individuals in group perceive themselves and are perceived by others as a social entity and the work group is interrelated with other groups and social systems. The word “team” has largely replaced the word “group” in organisational psychology (Dickson, Guzzo, 1996). However, according to some other researchers the term "work team" has some other qualitative characteristics than "work group", for example Katzenbach and Smith (1993) say that the essence of a work team lies in commitment and synergy. Synergy is the psychological connection that is reflected in the way the group members interact with each other and in group outcomes such as generated ideas, involvement, efficiency and productivity (Blackburn, Furst, Rosen 1999). Contemporary understanding is that "team-ness" is not an absolute criterion rather a matter of degree (Hackman, 2002). There are different individual and group level factors that determinate to what level the teamwork is finally accomplished (Bailey, Cohen, 1997).

1.1.2. Team work in organizations

Today the nature of work is more complex as well as global and the work has shifted from individuals to teams (Clayton, Devine, Dunford, Melner, Philips, 1999). This trend was predicted in 1983 by Reich and will be continued (Guzzo, Shea, 1992). The use of work teams has increased, in 1987 the percentage of using work teams was 27%, in 1990 it increased to 47%, and in 1993 to 68% (Clayton et al. 1999). Leavitt (1975) was one of the first who found that groups rather than individuals are the basic building blocks of the organisations. Nowadays there are four types of teams that are used in organisations: work teams, parallel teams, project teams and management teams. Work teams include

production and service activities, parallel teams include advice and involvement activities, project teams include project and development activities and management teams include action and negotiation activities (Bailey, Cohen, 1997). The increased use of teams and the issues that have emerged in relation to that shift in organisations has influenced research of work teams and factors that influence teams more and more (Guzzo, Shea, 1992). Articles written by Bailey and Cohen (1997) on the topic of teams that produce goods, deliver services, recommend improvements, design new products and determine strategic direction for their organisations are one of the most influential *Journal of Management* articles.

1.1.3. Concept of virtual teams

Organisations have found out that virtual teams provide competitive advantage with the purpose of working better, faster and cheaper. On the other hand virtual teams are less adapt to conflict management and problem solving (McGrath, Straus, 1994). Virtual teams are the new type of task oriented work groups of the 21st century that work across space, time and organisational boundaries, which are supported by computer and communication technologies (Bell, Kozlowski, 2002). Virtual teams have two main characteristics that distinguish them from collocated work teams. The main aspect that distinguishes them is that virtual teams are not physically proximal; nevertheless the tasks, goals and missions are not necessarily different from collocated work teams. Second characteristic of the virtual teams is that the members rarely interact in traditional face-to-face manner, they use mediating communication like teleconferencing, videoconferencing and e-mail for information, data and personal communication to maintain internal links and carry out their work. Surely many collocated work teams use communication technology, but it is a supplement to face-to-face communication, as virtual teams are virtual because of the lack of face-to-face communication (Dess, McLaughlin, Priem, Rasheed, 1995). There is not one definition for how much virtual teams have face-to-face interaction (DeMarie, Hendrickson, Townsend, 1998). According to Gibbs and Gibson (2006), there are 4 dimensions to describe virtual teams and how they vary: geographic dispersion (physical distance and time), electronic dependence (degree of computer-mediated versus face-to-face communication), dynamic structural arrangements (rate of change in participants, routines, roles, and responsibilities), and national diversity (ratio of different cultures). Virtuality lies on continuum that is ranging from minimal to highly virtual (Griffith, Neale, 2001). Previous studies had operationalized virtuality of teams in many

ways: taking into consideration only one aspect like the proportion of collocation (Gibson, Kirkman, Rosen, Tesluk, 2004) or several aspects like proportion of work time that the members spend working apart, the proportion on the team's members who work virtually, the degree of separation of the team's members (Schweitzer, 2010). However, different operationalizations have suggested similarly that higher virtuality is associated with perceived reduction in the quality of team interactions and performance.

1.1.4. Advantages of virtual teams in organizations

Organisations can take advantage of the opportunity to build the best team with the most qualified individuals where members of the team can be at different physical locations (Griffith, Neale, 2001). This enables for an organisation to increase competiveness and to be more flexible and adaptive (Bell, Kozlowski, 2002). For example, Bell and Kozlowski (2002) presented Geber's (1995) findings in their article on the topic of using virtual teams in companies that Whirlpool Corporation composed for a two-tear chlorofluorocarbon-free refrigerator project. The virtual team included members from United States, Brazil and Italy. In the near future most of people will work in virtual teams to fulfil some part of their job (Lipnack, Stamps, 1997). Gartner group made a prediction about the Global 2000 Company according to which more than 60% of the tasks will be done in virtual teams in 2004 (Biggs, 2000). Beside that advantage of use of virtual teams in organisations is that it affects efficiency and productivity (Huber, 1990). It is gained mainly due to the synergy that is created among members with different type of knowledge, experience and expertise (Klein, Kleinhanns, 2003). This has received academic attention as virtual teams are gaining more and more importance in organisational processes, which is why the author of this paper is trying to find out more about them.

1.1.5. Complexity of processes and interaction in virtual teams

Lack of collocation and the need to use sophisticated information technology add complexity to team interactions (Lipnack, Stamps, 2000) and affect team processes. We need to know what virtual team members need from each other, from their leaders and their organisations to maximise virtual team functioning (Weekes, 2005 as cited in Staples, Webster, 2007). For that important questions for organisations are the following: do employees in virtual teams function similarly as in traditional teams, are virtual teams alike

or are there differences according to extent of collocation and distribution (Fiol, O'Connor, 2005). Best practices are often identified by successful firms although they lack of demonstrated causality and generalizability (Christmann, 2000).

1.2. Communication in virtual teams

1.2.1. Electronic communication benefits and costs

Changes in working environment and changes in work setting affects the way virtual team members carry out their work and how they express themselves. Electronic communication has benefits like speed (Kiesler, McGuire, Siegel, 1984) and accessibility (Huber, 1990) to constantly talk through problems, share perspectives, get feedback and answer questions so that it is not necessary to wait for scheduled meetings (Hinds, Weisband, 2003). Computer mediated communication also has its costs, in privacy, security, trust and social control (Dunlop, Kling, 1991). Besides that, McGrath and Straus (1994) found that the understanding of each other is poorer in groups where communication is mediated by the computer.

1.2.2. Communication type and its channels

Communication is fundamental in getting any work done and in virtual teams it can be synchronous (same time but different place) and asynchronous (different time and different place) (Beranek, Warkentin, 1999). Asynchronous communication takes longer time, but in asynchronous communication it is easier to attribute an idea to its originator than it is in synchronous communication (Hightower, Sayeed, Warkentin, 1997). Virtual team effectiveness depends on the match between the task demand and the communication technology used, for example emails are not suitable for a complex task where it is necessary to have a great deal of communication between the team members (Dess et. al 1995). Also effective decision making depends on appropriate technology (Dickson, Guzzo, 1996). For more complex tasks there are communication technologies like desktop videoconferencing systems, collaborative software systems and Internet/Intranet. Videoconferencing provides simultaneous video picture and voice to all team members, collaborative systems include email, calendaring and allow team members to work both interactively and independently, Internet/Intranet allows to archive text, visual, audio,

numeral data and monitor other ongoing projects that can have impact on the task at hand, so that all the team members as well as outside constituents can be kept up-to-date (DeMarie et. al 1998).

1.2.3. Changes in group processes due to electronic communication

Electronic communication affects group functioning as the communication transmits social context cues like interaction regulation, expression of information, feedback monitoring (McGrath, Straus, 1994). Virtual team formation includes forming, norming and performing stages (Jensen, Tuckman, 1977), but the storming stage, which is inherent to face-to-face groups, is ignored or folded into other stages (Berrett, Chanidprapa, Johnson, LaFleur, Yoon, 2002). Lack of storming may be due to focusing more on a task than to personality or because communication systems have already been established for resolving conflicts (Berry, 2011). Haines (2014) researched group development in virtual teams and found that virtual team development is different from group development in face-to-face teams. The pressure to conform in the first stage of group development is higher due to computer-mediated communication.

Face-to-face communication has more tension release and agreement statements and computer mediated communication has more suggestions, orientation and opinion statements (Hiltz, Johnson, Turoff, 1986). For computer mediated communication teams it takes more time to reach to consensus (Dubrovsky, Kiesler, Sethna, 1991), because there are fewer agreements (Hiltz et. al 1986). There is a lack of information about other members and their reactions in groups where communication is computer mediated and which create feelings of depersonalization (Kiesler et. al 1984), which cause these groups to be more assertive and have more attacking statements than there are in face-to-face groups. Computer mediated communication also creates anonymity (Geller, Kiesler, Moses, Zubrow, 1985), which decreases inhibition in social situation (Milgram, 1965).

1.2.4. Socioemotional info and its impacts

Communication subtleties help to regulate the flow of conversation, facilitate turn taking and provide feedback (Beranek, Warkentin, 1999). Communication subtleties are difficult to convey without facial expression, gesture or vocal inflection (DeMarie et. al 1998) and reduction in those cues disrupt the flow of communication (Rutter, Stephenson, 1977). In electronic communication, emoticons or smiles are used for socioemotional

exchanges (Eimler, Ganster, Krämer, 2012), typing in All-CAPS, bracketing words or using exclamation for emphasizing (Walther, 1996). But there is little known how computer mediated communication really affects aspects of work. McGrath and Straus (1994) and also Hightower et. al (1997) found that the development of relational links between team members has a significant impact on the information exchange effectiveness. Those links develop strong within computer mediated communication groups if enough social information is exchanged after adequate time (Chidambaram, 1996). But media richness theory states that computer mediated communication lacks of socioemotional information, which is necessary for developing affections and trust (Daft, Lengel, Trevino, 1987). On the other hand Walther (1996) has found that computer mediated communication does not differ from face-to-face communication, because of the use of the emoticons for exchanging socioemotional information; the only thing that is different from face-to-face communication is the slower rate of transfer.

1.2.5. Communication impact on performance

Teams that use e-mail or facsimile omit all nonverbal communication. Teams that meet face-to face after a period of time and use richer communication media like teleconferencing and videoconferencing, capture some of the face-to-face subtleties (Gibson, Kirkman, Rosen, Tesluk, 2004). There is evidence that groups with computer mediated communication perform better when the task needs less social-emotional interaction, like idea generation tasks (Bordia, 1997). On the other hand, in case of tasks that require increased interdependence in groups with computer mediated communication the performance is not as great as in groups with face-to-face communication (Kiesler, Sproull, 1986). When tasks become more complex and need more collaborative decision making then demands of information richness becomes critical in synchronous communication media like videoconferencing (Bell, Kozlowski, 2002).

1.2.6. Communication risks in virtual teams

Virtual teams have more diversity, different disciplines, functions, professions, organizations, countries and cultures in comparison with face-to-face teams (Griffith, Neale, 2001). This kind of diversity and asynchronous communication adds complexity to virtual teams (Orlikowski, Yates, 2002). Feelings of isolation (Cascio, 2000) and loss of social identity (Garud, Raghura, Wiesenfeld, 1999 as cited in Agarwal, Maruping, 2004)

can lead to turnover and lack of participation, although managing team interactions is a critical team process for efficiency with which other team processes are managed (Jehn, Mannix, 2001). Virtual team members need to have a different attitude than face-to-face teams, they have to accept new members without the benefit of time-related socialization, for that they need to learn to express explicit norms and role expectations so that new members can quickly acculturate (DeMarie et. al 1998). It has been found that there is less social pressure in computer-mediated communication groups than in face-to-face groups (Bordia, 1997).

1.3. Trust in virtual teams

1.3.1. Concept of trust in virtual teams

As with many other concepts then there is not one clear definition for trust (Shapiro, 1987). One reason why there is not a clear definition is because each discipline views trust from its own perspective (Chervany, McKnight, 2000). Trust is fundamental for any team performance, one way how to define trust is that it develops through interaction, which is frequent and meaningful to the team members (Glacel, 1997; Holton, 2001). Trust and open communication creates conditions for collaboration (Kleiner, Roberts, Ross, Senge, Smith, 1994). Another way to define trust is the likelihood that team members will follow other group members' expectations (Davis, Mayer, Schoorman, 1995).

1.3.2. Cognitive and behavioral aspects of trust in virtual teams

According to traditional literature and research, trust has cognitive and emotional elements (Lewis, Weigert, 1985). Davis et. al (1995) found that trust has two dimensions: taking initiative and action towards the goal and exhibit care and concern towards team members and willingness to do good. In virtual teams, trust is more related with the cognitive element (Kanawattanachai, Yoo, 2002) and it is based more on actions than goodwill (Jarvenpaa, Leidner, 1999). Actions and expectations about them have to be explicit, which are accomplished by the norms on how the work related information should be communicated. These norms should be repeatedly revisited. There are also important agreed-upon timelines besides the communication norms that help to create trust with the

purpose of making the task progress explicit (Majchrzak, Malhotra, Rosen, 2007). Absence of trust leads to the situation where team members reduce their efforts and withhold cooperation (Davis et. al 1995). It has been found that how much there is trust or mistrust in relationship is related to the defensive behaviour (Zand, 1972).

1.3.3. Communication influence on the trust in virtual teams

On the basis of Lipnack and Stamps (1997) work virtual teams' success or failure depends mostly on trust. According to Kanawattanachai and Yoo (2002) trust is the glue that holds and links virtual team members together. Haines (2014) found that trust was connected to the goal commitment, the trust in peers was the highest when the teams accomplished the task appropriately. Jarvenpaa and Leidner (1999) have found that trust can exist, based on early task focus and named it as swift trust, but it is fragile in virtual teams because feelings of anonymity. According to Handy (1995), there is a possibility that trust in virtual teams is not possible.

Difficulty of developing social relationships and trust through computer mediated communication lies under depersonalization effect (Kiesler, Sproull, 1986). According to Chidambaram (1996) close relational ties and group attitudes are developed after a period of time when groups with computer mediated communication have exchanged socioemotional information. Jarvenpaa and Leidner (1999) have found that there are different communication behaviours in virtual teams with high trust and with low trust. Beside that it is essential to select and use effective communication tools to develop meaningful dialogue for building trust among virtual team members (Kleiner et. al 1994).

1.3.4. Relations of trust in virtual teams

Jarvenpaa, Knoll and Leidner (1998, p. 30) found that in virtual teams trust was related with productivity and it is "pivotal in preventing geographical distance from leading to psychological distance in a global team". Trust decreases transaction costs in virtual teams (Handy, 1995), leads to higher decision-making quality (Zand, 1972), increases security in the relationship (Earley, 1986) and leads to risk-taking (Chervany, McKnight, 2000). Trust factor becomes really important in case of uncertainty (Davis et. al 1995). In virtual teams members have to trust each other from the beginning on the basis of background, professional credentials, affiliation and cannot rely on past or wait while

experience shows if the members of the team can be trusted (Kramer, Meyerson, Weick, 1996).

1.4. Team commitment in virtual teams

1.4.1. Concept of team commitment and its components

During the 1990s, commitment was one of the research topics that gained most attention. It is known that commitment is multidimensional and its antecedents, correlates and consequences vary (Herscovitch, Meyer, Stanley, Topolnytsky, 2002). Commitment has been defined in various ways; the link with turnover is common to the different conceptualizations: strongly committed employees are least likely to leave.

Differences lie in the fact that commitment is reflected from the psychological state, which is developed from the antecedent conditions and that contribute to behaviour (Allen, 1990). According to Allen, Meyer and Smith (1993, p. 539), commitment is "a psychological state that a) characterizes the employee's relationship with the organisation and b) has implications for the decision to continue or discontinue membership in the organisation". Commitment is contained of three components: affective, normative and continuance commitment factors. Affective commitment is related to the employee's desire to remain, normative commitment is related to obligation to stay, and continuance commitment is related to the need to stay, because of the perceived costs of leaving. It is important to distinguish those components because they have different implications for behaviour (Allen, Meyer, Smith, 1993). This commitment model has received the greatest support (Herscovitch, Meyer, 2002) and it has been adapted for multiple targets of workplace commitment (Becker, Meyer, Vandenberghe, 2004*)*. Commitment is important because it predicts employee's extra role behaviour (Wiener, 1982). Extra role behaviour is not part of the job description and though it is not considered to be a duty of the job, the employee will offer it without concern for rewards or sanctions (Bateman, Organ, 1983).

Affective commitment

Buchanan (1974, p. 533) defined commitment as "a partisan, affective attachment to the goals and values of the organisation, to one's role in relation to the goals and values, and to the organisation for its own sake, apart from its purely instrumental worth". Work experiences such as organisational rewards (Gregersen, 1992), procedural justice (Gellatly,

1995) and supervisor support (Hutchison, 1997) have been associated with affective commitment. Affective commitment antecedents are personal characteristics and work experience, consequences are related with on-the-job behaviour, employee health and well-being, withdrawal cognition and turnover (Herscovitch et. al 2002).

Normative commitment

Wiener (1982, p. 421, p.471) has conceptualized commitment as the "totality of internalized normative pressures to act in a way, which meets organisational goals and interests", employees behave in a way only because "they believe it is the "right" and moral thing to do". No antecedents for normative commitment have been found, among consequences normative commitment is related with withdrawal cognition, turnover and desirable outcomes (Herscovitch et. al 2002).

Continuance commitment

According to Stebbins (1970, p. 527), commitment is the "awareness of the impossibility of choosing a different social identity…because of the immense penalties in making the switch". Continuance commitment is not related with the employee's behaviour, except those that are related with maintaining organisational membership. Continuance commitment antecedents are personal characteristics, socialization experiences and organisational investments and consequences are related with turnover and turnover intentions (Herscovitch et. al 2002).

1.4.2. Relations of team commitment in virtual teams

Virtual teams operate in an environment where there are changes of environmental structure, there are more horizontal organisations and advantages of informational technology. Virtual teams need to create, communicate and gain commitment to goals to gain effective team performance (Lipnack, Stamps, 1997). Virtual team members need to guide their behaviours according to the commitment to team goals and their collective understanding as face-to-face interactions are minimal or absent (Blackburn et. al 1999).

There are speculations that using communication technology reduces worker commitment (Ellison, 1999) because of the ambiguous environment (Hartog, Keegan, 2004) and low external structure (Stanworth, 1998). In case the virtual team is composed of a mixture of employees, each of whom has different perception of the degree of

commitment, and then each of these employees will adjust their commitment to perceive the balance. Building trust helps to overcome uncertainties and attain adequate reciprocal commitment (Crossman, Lee-Kelley, 2004).

Media richness is related to the type on technology that is used in virtual teams (Daft, Lengel, 1984) and richness is positively related with the commitment in virtual teams (Bommer, Kahnweiler, Workman, 2003). Due to difficulty of developing a shared vision or mission and a unified sense of purpose shared for virtual team members (Blackburn, Furst, Rosen 2003), it has been found that formalizing work processes are critical for the performance of virtual teams (Lurey, Raisinghani, 2001) and that goal setting is positively related with the commitment in virtual teams (Huang, Tan, Watson, Wei, 2002). Crossman and Lee-Kelley (2004) refer in their article to Morgan and Zeffane's conference material (2000) regarding to new management that trusts employees, which ensures participation in decisions, increases worker commitment and raises self-motivation.

1.5. Efficacy beliefs in virtual teams

1.5.1. Concept of efficacy beliefs and its components

Efficacy beliefs are about individual or group capability, which are not always accurate assessments. People are used to overestimate and underestimate their actual abilities, and because of that there are consequences for the course of actions and effort they apply to pursue. Strength of individuals and organisations efficacy beliefs influences the choices they make (Goddard, Hoy, Hoy, 2004). Efficacy beliefs have direct impact on a group's success-failure outcome (Riggs, Knight, 1994). Efficacy is distributed into two - self-efficacy and collective efficacy, which differ in their unit of agency, but both have similar sources, functions and processes (Bandura, 1997 as cited in Goddard et al. 2004). There are four sources of information that are needed for developing efficacy beliefs: past performance accomplishments, vicarious experience, verbal persuasion, physiological and affective sates (Baker, 2001 as cited in Davison, Fuller, Hardin, 2006).

Self-efficacy beliefs

Self-efficacy is defined by Bandura (1982, p. 122) as a personal judgment of "how well one can execute courses of action required to dealing with prospective situations".

These beliefs predict individuals' performance, whether person's coping behaviour will lead to successful outcomes, how much task-related effort will be spent and how long that effort will be carried on despite of obstacles that appear (Bandura, 1977). Self-efficacy beliefs are not judgments about one's skills, but what the person thinks will be able to accomplish with those skills (Bandura, 1986 as cited in Feltz, Lirgg, 2001). It has been found that self-generated feedback is important in building self-efficacy (Ivancevich, McMahon, 1982) and intrinsic interest is positively related with self-efficacy (Frost, Mahoney, 1976 as cited in Gist, 1987).

The self-efficacy theory is part of the social cognitive theory that behaviours, personal cognitive and affective factors, environmental factors are interrelated (Pajares, 1995) and receive support from varied disciplines and fields. Personal efficacy beliefs predict willingness to perform threatening activities (Arch, 1992 as cited in Bandura, Locke, 2003). Perceived higher self-efficacy has impact on aspiration and strategic thinking (Bandura, Wood, 1989).

Collective-efficacy beliefs

Collective-efficacy is also part of social cognitive theory and defined by Bandura (1997, p. 476 as cited in Feltz, Myers, Short, 2004) as "a group's shared belief in their conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments". Collective-efficacy beliefs represent "the performance capability of a social system as a whole" (Bandura, 1997, p. 469 as cited in Goddard et al. 2004). Collective-efficacy is formed when group members acquire, store, manipulate and exchange information about each other, their task, context, process and performance (Gibson, 1999). Collective-efficacy operates through similar processes, have similar sources and serve similar functions as self-efficacy (Bandura, as cited in Goddard et al. 2004). It has been claimed that collective-efficacy is the extension of self-efficacy theory to explain group choices, effort, persistence (Bandura, 1986 as cited in Feltz et al. 2004).

Shared values and created trust promotes cooperation, which contributes to expand of collective-efficacy beliefs, which has been found to be significantly related with team potency and team performance (Lee, Nyberg, Stajkovic, 2009) through time of completion, team agreement, process effectiveness, perceived effectiveness of the team's solution (Earley, Gibson, Randel, 2000). Collective-efficacy is related with the degree of how much the team members attempt to compensate each other's behaviour by monitoring member's

actions and by working harder (Smith, 2002 as cited in Bowers, Cuevas, Fiore, Salas, 2003).

1.5.2. Relations of self-efficacy beliefs in virtual teams

In virtual teams, where employees have to work autonomy in great extent and they have to rely on their own abilities, self-efficacy have been found to be related with virtual team performance (Higgins, Hulland, Staples, 1999). Self-efficacy determines a person's behaviour in IT use context and is related with the decision to share knowledge in virtual teams (Hsu, Ju, Yen, Chang, 2007). Team members from virtual team environments report less confidence in their ability than team members from face-to-face team environment (Davison, Fuller, Hardin, 2007).

Self-efficacy in virtual teams is associated with computer self-efficacy (Davison et al. 2006). Computer self-efficacy has been defined "a judgment of one's capability to use a computer" (Compeau, Higgins, 1995, p. 192). Self-efficacy is examined at the task-specific level and computer self-efficacy is examined on a general level (Compeau, Higgins, 1995).

1.5.3 Relations of collective-efficacy beliefs in virtual teams

Collective-efficacy have been shown to influence virtual team performance (Fuller, Hardin, Valacich, 2006). Collective-efficacy helps virtual teams to perceive themselves as capable to overcome difficulties of working virtually (Bradley, Burke, Gonzalez, Santuzzy, 2000). Collective-efficacy is related with virtual team learning (Gil, Ortega, Rico, Sanchez-Manzanares, 2010).

Collective-efficacy in virtual teams is associated with computer collective-efficacy and it has been defined as "the belief in the group's general computer competency" (Davison et al. 2006, p. 223). Collective-efficacy is a group's belief in its ability to perform at task level and computer collective-efficacy is group's belief to generally perform advanced and conceptual computer tasks (Davison et al. 2007).

1.6. Effectiveness in virtual teams

1.6.1. Different perspectives of effectiveness in virtual teams

As virtual teams will have great impact on future organisations and we know relatively little about them at the moment, it is vital to find out and identify how the factors that are much more different from the collocated teams affect virtual teams' performance and team processes (Bell, Kozlowski, 2002). Virtual teams are not face-to-face teams at a distance; they have significant differences even though their work formats can be similar (Blackburn et al. 1999). According to Potter and Balthazar (2002), factors that influence collocated team effectiveness are not valid for predicting the effectiveness of virtual teams.

1.6.2. Concept of effectiveness in virtual teams

Although virtual teams have increasingly important role, little systematic is known about their effectiveness. During the years many models have been developed of team performance and effectiveness to discover how to reduce process losses and improve performance, still there is no singular measure on performance effectiveness.

According to Hackman and Oldham (1980) work group effectiveness embrace three criterions, which include both achieving the output and social needs: 1) output: level of effort to the output so that it meets quality and quantity standards (affected by the design of the group task); 2) learning: knowledge and skill that is applied to work processes so that members needs are satisfied rather than aggravated (affected by the composition of the group); 3) social processes: group is capable to work interdependently and uses appropriate task performance strategies (affected by the group norms). Blackburn et al. (1999) suggested that fourth criteria should be included to virtual team effectiveness model in addition to Hackman and Oldham (1980) three component model: the extent of virtual team's electronically captured, stored and retrieved processes and outcomes, for the purpose of increasing organizational knowledge and learning. It is easier to review performance in virtual teams than in face-to-face teams, because interactions, commitments and outcomes are archived automatically (Cohen, Gibson, 2003). According to previous 4 dimensions distribution of virtual team effectiveness, this paper focuses only on the social processes, more precisely on the psychosocial processes that impact effectiveness.

Previous researches studying team effectiveness have emphasized the importance of individuals' psychological attachment (e.g trust and commitment) and efficacy beliefs on team's outcome. All three constructs have been relatively little researched among virtual teams and according to EBSCO database there is none previous research which study all three constructs: trust, commitment, efficacy beliefs relationship with effectiveness in one research together.

1.6.3. Determinants of success of virtual teams

Little empirical evidence has been found about what contributes to the success of virtual teams (Hightower et al. 1997). Biggs cited in Kanawattanachai and Yoo (2005) predicted in year 2000 that "by 2003, 50% of virtual teams will fail to meet either strategic or operational objectives due to the inability to manage distributed workforce". Researchers have claimed that greatest challenge of creating success of virtual teams depends on building trust (Jarvenpaa, Leidner, 1999; Jarvenpaa et al. 1998), although trust is important for the successful formation and growth of any team (Kleiner et al. 1994). Working virtual team members and leaders have claimed that success or failure of virtual teams primary depends on the technology (Briggs, Mittleman, Nunamaker, Romano, 1997 as cited in Zakaria, Amelinckx, Wilemon, 2004).

For any group, proper preparation is needed to ensure the group's success: appropriate members, previously distributed appropriate documents, leader role establishment (Jay, 1976). There are 5 factors that support virtual team performance: 1) supportive organisational culture; 2) some characteristics of the task itself; 3) use of technology; 4) team member characteristics supported by training and development; 5) work and team processes (Cohen, Gibson, 2003). Highest level of performance effectiveness requires these factors plus leadership and systems support (Klein, Kleinhanns, 2003).

Virtual teams are flexible and can rapidly respond to environmental changes and challenges (Kayworth, Leidner, 2001). The performance of virtual teams is closely related to keyword empowerment (Marks, Mathieu, Zaccaro, 2001). As virtual teams are often autonomous or lack a formal leader (Atwater, Balthazard, Howell, Waldman, 2004) or the leader is not involved in day-to-day activities and decision making (Wageman, 2001) then virtual teams need to have leadership behaviours to move the team forward (Zigurs, 2003). According to Jermier and Kerr (1978) empowerment functions in virtual teams as a

substitute of leadership functions, because virtual team members assume these responsibilities and functions that are present in face-to-face teams. Important aspect of virtual teams, where members are less connected with other members and team leaders, is that extrinsic motivational factors like evaluation, recognition from external leaders, and feedback from organisational stakeholders are less powerful sources of motivation than in face-to-face groups. In virtual teams motivational factors are embedded more in the task itself, which is inherent in team empowerment (Gibson et al. 2004). Intrinsic motivation and empowerment are related to assessments of team tasks, responsibilities and capabilities (Kirkman, Rosen, 1999). The absence of empowerment may lead virtual teams to distrust, not sharing important information, unwillingness to take risks. In virtual teams empowerment has been found to be positively related with virtual team performance: process improvement and customer satisfaction (Gibson et al. 2004*)*.

Besides technical skills interpersonal skills like team building, group dynamics, conflict resolution and skills of group communication are important for the success of virtual team (Cianni, Wnuck, 1997). Success of computer-mediated communication is partly related with the team member's ability to share socioemotional content (Hightower et al. 1997). There is empirical evidence for diversity as a value for team performance (Kumar, Michaelson, Watson, 1993), but it is more likely that diversity leads to intragroup conflict (Jehn, Mannix, 2001). Virtual teams are challenged to deal with conflicts that arise from crossing multiple boundaries. Simple work and tasks in virtual teams can be done without the presence of higher level collaboration skills and trust (Jarvenpaa, Leidner, 1999). When comparing groups with computer mediated communication and face-to-face groups, there was no difference in the quality of the work, but there was large difference in productivity, because face-to-face groups had higher coordination (McGrath, Straus, 1994).

Geber (1995) cited in Holton (2001) found that the personality type may also have an effect on the virtual team's success. Introverts who prefer expressing themselves in writing are skilful in the virtual environment. According to Hightower et al. (1997), psychological profile among virtual team members should include patience, persistence, tolerance, flexibility and understanding.

1.6.4. Models of virtual team effectiveness

Virtual teams face particular challenges in sustaining effective team processes. According to Gibbs and Gibson (2006), all four following dimensions that can vary and characterize each virtual team: geographic separation; electronic dependence; structural dynamism and national diversity have impact on effective team processes and require specific conditions for effective performance. Despite of so many barriers to effective performance with what virtual teams are challenged to, there are proofs that many of them success to manage to.

Virtual team effectiveness and trust

Antecedent of synergistic group work is trust. Trust have been considered to be one of the most important factors that contribute to virtual team effectiveness domain of organizational behavior sciences that needs further investigations (Mansor, Mirahsani, Saidi, 2012). The formation of trust is desirable because it reduces the costs of monitoring and controlling and though increases efficiency (Aubert, Kelsey, 2003).

Trust should consider various factors that during different phases of virtual teams' processes should be assessed and which makes developing trust particularly complex. Mansor et al. (2012) examined different contributor factors towards trust in effective virtual teams. Effectiveness was inspected from three dimensions of people, process and technology. They used descriptive and conceptual review of the past literature and SEM statistical equation with the survey's collected information to justify the proposed conceptual framework. They found that trust was moderated by 6 factors: ability, integrity, communication, training, risk, work engagement that influenced virtual team effectiveness.

Virtual team effectiveness and team commitment

Commitment is psychological attachment that has significant effect on work performance and member well-being. Strong team commitment leads to enhanced job effectiveness (Lin, 2011). Team members with strong commitment are unlikely to avoid essential obligations and dedication within the team, which results in increased job effectiveness (Hislop, 2003).

Chieh-Peng Lin (2011) presented model of virtual teams effectiveness and its antecedents from a social capital perspective. He found that social capital indirectly through the mediation of commitment influences effectiveness. He collected data with questionnaire of 20 virtual teams (417 subjects) in Taiwan IT companies.

Virtual team effectiveness and efficacy beliefs

Self-efficacy has been studied in many work-related performance situations, and there is high predictive validity of self-efficacy, if person has strong self-efficacy beliefs, that one is able to do a specific action, then one will be more effective in doing the activity (Gist, Mitchell, 1992). Staples and Webster (2007) found that self-efficacy is positively related with the virtual team effectiveness.

Staples and Webster (2007) found in comparison with face-to-face teams that self-efficacy for teamwork was more important for effectiveness in virtual teams than in traditional teams. There are no existing conceptualization of self-efficacy-teamwork, their model focused on individual team members rather than the team as a whole, how self-efficacy beliefs make individual team members effective. They interviewed either face to face or via telephone 39 virtual team members from three different industries (high tech, consulting, manufacturing). For the comparison group data was collected from 511 a web-based questionnaire.

Collective-Efficacy as a group's belief that as a group it can handle specific tasks, it influences the group performance: to initiate action, amount of effort the group will exert and how long the effort will be sustained (Lee et al. 2009). Davison et al. (2007) found that beliefs about the team's ability to work in virtual environments are positively related with team effectiveness.

Cordery and Soo (2008) presented process-oriented model of virtual teams effectiveness. They referred to one multinational mining organization where 56 semistructured interviews with virtual team leaders and members. They made explicit three key psychosocial processes, which mediate the effective outcomes of virtual teams and characterize virtual teams' design: 1) access, share and capitalize team knowledge; 2) develop collective work engagements; 3) experience the sense of collective competence (collective-efficacy beliefs).

2. METHODOLOGY AND RESEARCH

The chapter starts with the description of the measurement tools that are based on research questions and identified variables. It is followed by the description of sampling procedure and sample.

2.1. Measures

According to Web of Science and EBSCO databases, previously there have been little research done in this field and relatively few accurate scientific research methodologies can be found. Galvin, Piccoli and Powell (2006) researched commitment in virtual and collocated teams, where they used modified scales. Scale of trust was adapted from Jarvenpaa and Leidner (1999) research results about trust in virtual teams, however affective commitment and normative commitment scales were adapted from Allen and Meyer (1991), which originally was developed to measure organizational commitment. Knight and Riggs (1994) studied perceived success and failure, efficacy beliefs, outcome expectancy, satisfaction and organizational commitment among collocated teams, where they used revised scales that were previously developed to measure general level of self-efficacy, collective-efficacy and outcome expectancy (Riggs, 1998; Babasa, Betancourt, Hooker, Riggs, Warka, 1994 cited in Knight, Riggs, 1994).

In accordance with previously described methodology, the study at hand also used eight existing validated scales that were adapted and modified to reflect and to measure the construct of the current study. Seven scales were based on the research questions and perceived success-failure scale items were added to collect data about performance outcomes. All research variables were measured using multi-item scales. The actual scales were translated into Estonian and are included in the Appendix 1.

Following scales were used:

1) Team Effectiveness Scale (Alexander, 1985);
2) Team Trust Scale (Jarvenpaa, Leidner, 1999);
3) Team Commitment Scale, which was divided into three subscales:
   *Affective Commitment Scale (Allen, Meyer, 1991);
   *Normative Commitment Scale (Allen, Meyer, 1991);

*Continuance Commitment Scale (Allen, Meyer, 1991);

4) Self-Efficacy Scale (Knight, Riggs, 1994);
5) Collective-Efficacy Scale (Knight, Riggs, 1994);
6) Perceived Group Success-Failure Scale (Knight, Riggs, 1994)

In all scales Likert-type scale ratings were used and responses ranged from 1-5: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree. *Team Effectiveness Scale* consisted of eight items; *Team Trust Scale* consisted of four items; *Affective Commitment Scale* consisted of six items; *Normative Commitment Scale* consisted of six items; *Continuance Commitment Scale* consisted of eight items; *Self-Efficacy Scale* consisted of ten items; *Collective-Efficacy Scale* consisted of seven items; *Perceived Group Success-Failure Scale* consisted of four items.

For all measures the Cronbach's alphas were above the 0.70 (Table 1), except for *Continuance Commitment Scale* (α=0.58) and *Perceived Group Success-Failure Scale* (α=0.58). These scales were part of a battery of tests and designed to be shorter to increase the likelihood of response. Because of the little sample size and that all the original questions were not included, therefore these scales reliability decreased. There is a rule that Cronbach's alpha should be above 0.7. As it is influenced by the amount of items scale consisting, from four or five items it can be plausible with Cronbach's alpha value of 0.6 (George, Mallery, 2003). According to this argument two scales are approximately valued with 0.6 and though considered to be enough reliable.

Table 1. Cronbach's alphas of scales

Scale	Cronbach's Alpha
1) Team Effectiveness	0.84
2) Team Trust	0.83
3) Affective Commitment	0.78
4) Normative Commitment	0.86
5) Continuance Commitment	0.58
6) Self-Efficacy	0.77
7) Collective-Efficacy	0.82
8) Perceived Group Success-Failure	0.58

Background information was collected about demographic variables, work experience, experience working in concrete team, type of communication and

collaboration technology and it's usage frequency, number of concrete team members, period for how long the concrete team is planned to work together, concrete team's field of activity, subject's main task in team, frequency of face-to-face team meetings, frequency of communication technology mediated team meetings, percentage of how much work in a team is done by using communication technology. All scales were based on self-evaluation data and it was asked to keep in mind the subject's own perceptions of the concrete virtual work team.

2.2. Procedure

Data was collected with online survey. Questionnaire was constructed in Google Drive using forms application and was delivered via e-mail to contact persons, among whom were the members of the virtual teams, secretaries and human resource managers of the organizations. They were asked to share the questionnaire via e-mail with the employees who belong to virtual teams in their organization. Respondents were asked to answer as a member of a virtual team and keep in mind one concrete work team while answering to the questions. Previous studys of virtual teams have researched members of a team and analyzed the results at the team level (Lin, 2011). According to that, study at hand researched also members of virtual team and analzed the results at the team level. A raffle for Piletilevi voucher worth of 20 EUR was carried out as an incentive among the respondents who agreed to reveal their phone numbers. Answering the survey was anonymous and the results were used only for current study, ensuring confidentiality. The questionnaire was open for two weeks, from 16.03.15 until 30.03.15. It took approximately 10 to 15 minutes to fulfill the questionnaire.

A pilot survey was conducted from 26.02.15 until 4.03.15 among 10 respondents beforehand to control the validity of the questions. After fulfilling the questionnaire, necessary changes were done in wordings, scale ranges, some questions were removed and some new questions were added.

2.3. Participants

In sampling strategy both strategies were used: purposive and convenience sampling. The questionnaire was sent to 76 Estonian organizations: enterprises, start-ups, project groups, banks, ministries, universities, public services and non-profit organizations. A sample consisted of quite a broad range of job types and organizational levels.

A virtual team was defined as a unit of employees, who have shared purpose across space, time, organizational boundaries and uses communication technologies, to fulfill a common goal (Dennis, Valacich, 1999). Virtuality of a team could range from minimal to highly virtual, because virtuality lies on continuum (Griffith, Neale, 2001) and where face-to-face interactions can occur in a variety of ways over time (Berrett et al. 2002).

Among 83 respondents there were 37 men (44.6%) and 46 women (55.4%). On the basis of *age* seven categories were formed: 18-21; 22-25; 26-30; 31-40; 41-50; 51-60; over 60. Most of the subjects, 30.1% (N=25) were in the age group 26-30 years, in age group 31-40 years were 24.1% (N=20) respondents, in age group 22-23 years were 14.5% (N=12) respondents, in 51-60 years were 12% (N=10) respondents. In age group 41-50 years were 10.9% (N=9) respondents. There was only one person from age group 18-21 years (1.2%) and six persons (7.2%) in age group over 60 years. These results distributed roughly according normal curve (skewness=0.50, kurtosis=-0.57). Male's age distribution was roughly according to normal curve (skewness=0.73, kurtosis=1.75). Female's age distribution did not distribute according to normal curve (skewness=0.16, kurtosis=-1.26), there was slope towards less than 40 years old female (see Figure 1).

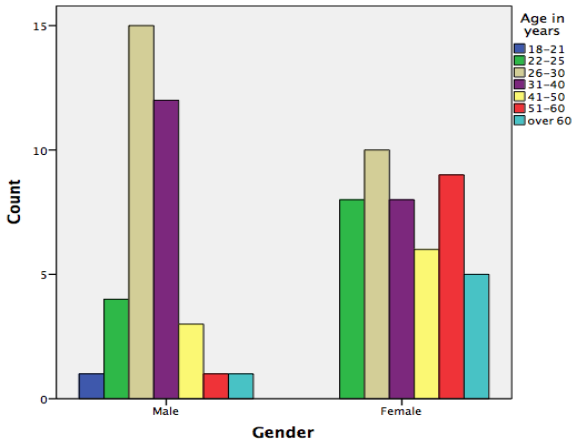

Figure 1. Age in years and gender

On the basis of *work experience* five categories were formed: less than a year; 1-5 years; 6-10 years; 11-15 years; 16 and more years. Most of respondents 33.7% (N=28) had 16 and more years of working experience. 24.1% (N=20) of respondents had 6-10 years of working experience. 20.5% (N=17) of respondents had 1-5 years and 19.3% (N=16) had 11-15 years of working experience. Two respondents (2,4%) had less than one year of working experience. These results distribute roughly according to normal curve (skewness=-0.25, kurtosis=-1.23).

On the basis of *working experience in a concrete team* five categories were formed: less than a year; 1-5 years; 6-10 years; 11-15 years; 16 and more years. Most of the respondents 47% (N=39) had worked in a concrete team 1-5 years. 19.3% (N=16) of the respondents had worked 6-10 years in a concrete team, 18.1% (N=15) of the respondents had worked in a concrete team less than a year and 9.6% (N=8) of the respondents had worked 16 and more years in a concrete team. 6% (N=5) of the subjects had worked 11-15 years in a concrete team. These results did not distribute according to normal curve (skewness=0.94, kurtosis=0.26), there was slope towards having working experience in a concrete team below 10 years. The most respondents had 1-5 years of working experience in a concrete team, both for men (N=20, 54.1%) and for women (N=19, 41.3%). Working experience in a concrete team did not distribute among men according to normal curve (skewness=1.25, kurtosis=2.10), there was slope towards having working experience in a concrete team below 10 years. Working experience in a concrete team was among female roughly distributed according to normal curve (skewness=0.71, kurtosis=-0.44). There were more women (N=10, 21.7%) than men (N=3, 8.1%) who had more than 10 years of working experience in a concrete team (see Figure 2).

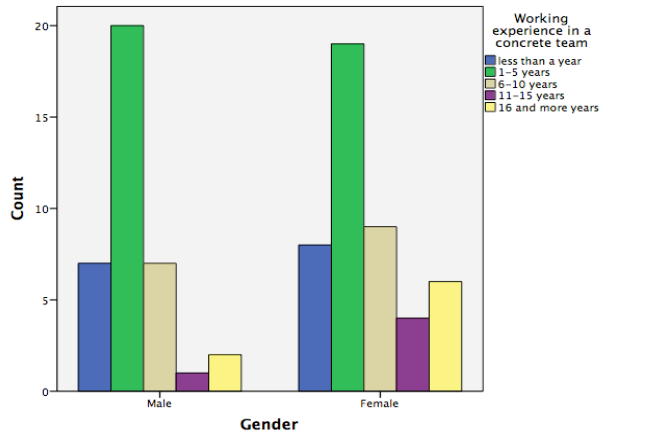

Figure 2. Working experience in a concrete team and gender

On the basis of *subject's frequency of communication technology usage* five categories were formed: several times during a day; once during a day; once during several days; a few times in a week; less than previously mentioned. Most of the respondents 92.8% (N=77) used communication technology several days during a day. Four respondents (4.8%) used once during a day and two subjects (2.4%) used few times in a week. Other frequencies were not selected. These results did not distributed according normal curve (skewness=4.93, kurtosis=25.43), there was slope towards usage of communication technology several times during a day.

On the basis of *different type of communication technology that is used in a concrete team* six categories were formed: e-mail; teleconferencing, videoconferencing; software that supports collaboration; Intranet, other collaboration tool. 98.8% (N=82) of the respondents used in their teamwork email, only one subject (1.2%) did not use email. 49.4% (N=41) of the respondents used teleconferencing and videoconferencing was used by 63.9% (N=53) of the respondents. Collaboration software was used by 63.9% (N=53) of the respondents. Intranet was used by 57.8% (N=48) of the respondents. Other collaboration tool was used by 9.6% (N=8) of the subjects.

On the basis of *number of team members in a concrete team* four categories were formed: 2-5 persons; 6-8 persons; 9-12 persons; more than 12 persons in a team. Most of the respondents 34.9% (N=29) had 6-8 persons in their team. 31.3% (N=26) of the respondents had more than 12 members in their team, 18.1% (N=15) of the respondents had 2-5 persons in their team and 15.7% (N=13) of the subjects had 9-12 persons in their team. These results distributed roughly according normal curve (skewness=0.03, kurtosis=-1.39).

On the basis of *period for how long the concrete team is planned to work together* six categories were formed: until a couple of months; until one year; until two years; until three years; for an indefinite period, other set of time. Most of the respondents 80.7% (N=67) worked in a team that is planned to work for an indefinite period. 6% (N=5) of the respondents worked in a team that is planned to work together until one year and also 6% (N=5) of the respondents were working in a team that is planned to work together until two years. Two respondents (2.4%) were working in a team that is planned to work together for until a couple of months; two respondents (2.4%) were working in a team that is planned to work together for until three years and two respondents (2.4%) were working in a team that is planned to work together for other set of time. These results did not distributed

according normal curve (skewness=-2.17, kurtosis=3.84), there was slope towards team being planned to work together for an indefinite period.

On the basis of *concrete team's field of activity* five categories were formed: production of goods, delivering of services; recommending of improvements; developing of new products or services, other activity. 45.8% (N=38) of the respondents work in team that delivers services, 30.1% (N=25) respondents work in a team that develops new products or services. 16.9% (N=14) of respondents work in a team that have other field of activity. 4.8% (N=4) work in a team that recommends improvements. Two respondents (2.4%) work in a team that produces goods.

On the basis of *subject's main related tasks* four categories were formed: thinking oriented tasks, action oriented tasks, people oriented tasks, other type of tasks of the subjects. 32.5% (N=27) of the respondents were related with thought oriented tasks, 30.1% (N=25) of the respondents were related with people oriented tasks and 21.7% (N=18) of the subjects were related with action oriented tasks, 15.7% (N=13) of the subjects were related with other type of tasks.

On the basis of *frequency of face-to-face team meetings* seven categories were formed: 1-3 times in a month; 4-6 times in a month; 7-9 times in a month; a few times in a quarter; a few times in a year; less often, other frequency. Most of the respondents 41% (N=34) had face-to-face team meetings 1-3 times in month, 20.5% (N=17) of the respondents had face-to-face team meetings 4-6 times in month. 12% (N=10) of the respondents had face-to-face team meetings few times in a quarter, 9.6% (N=8) of the respondents had 7-9 face-to-face team meetings in a month, 8.4% (N=7) of the respondents had face-to-face team meetings a few times in a year. 3.6% (N=3) of the respondents had face-to-face team meetings less than few times in a year. There were 4.8% (N=4) of the respondents who had face-to-face meetings with other frequency. These results did not distributed according normal curve (skewness=1.00, kurtosis=-0.06), there is slope towards having several times in a month face-to-face team meetings.

On the basis of *frequency of communication technology mediated team meetings* five categories were formed: there isn't communication mediated meetings; 1-3 times in a month; 4-6 times in a month; 7-9 times in a month; there are more than nine such meetings. Most of the respondents 38.6% (N=32) had 1-3 communication technology mediated team meetings in a month. 21.7% (N=18) of the respondents did not have communication mediated team meetings. 15.7% (N=13) of the respondents had 4-6 communication technology team mediated meetings and 14.5% (N=12) of the respondents

had 7-9 communication technology mediated team meetings. Eight subjects (9.6%) had more than nine such meetings. These result distributed roughly according normal curve (skewness=0.61, kurtosis=-0.66). Those teams that were meant to work together for indefinite period had both approximately the same number of face-to-face team meetings in month (N=29, 43.3%) and communication mediated team meetings (N=31, 46.3%) in a month (see Figure 3 and Figure 4).

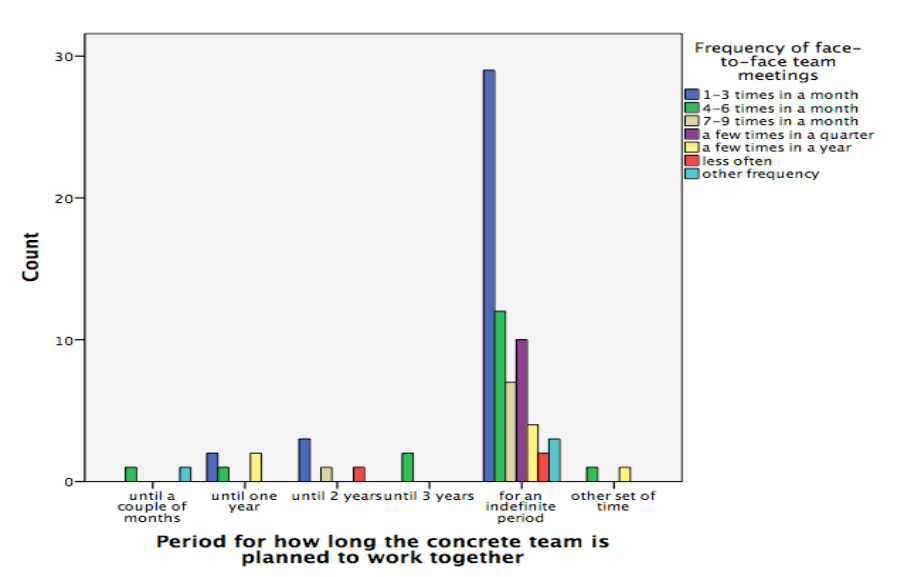

Figure 3. Frequency of face-to-face team meetings and period for how long the concrete team is planned to work together

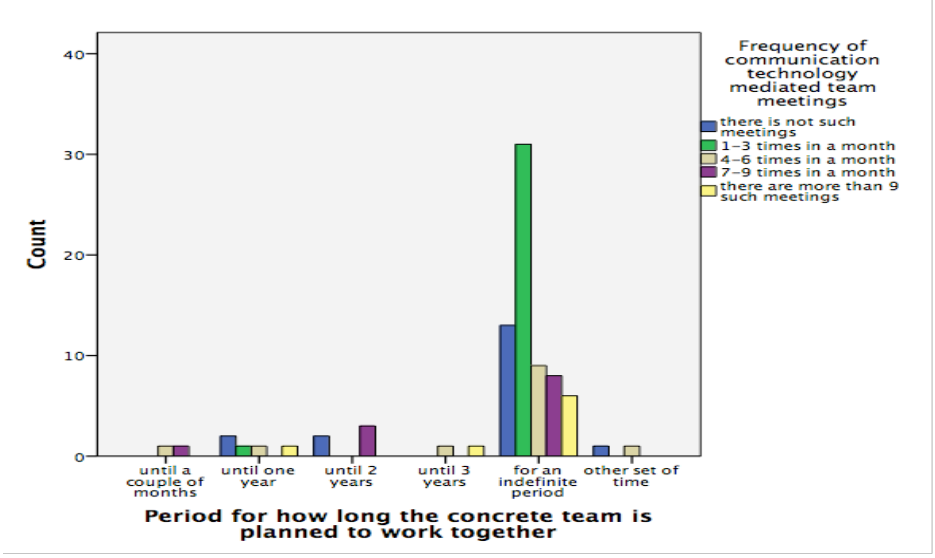

Figure 4. Frequency of communication technology mediated team meetings and period for how long the concrete team is planned to work together

On the basis of *percentage of how much work in a concrete team is done by using electronic technology* four categories were formed: 0-25%; 26-50%; 51-75%; 76-100%. 30.1% (N=25) of the respondents had 76-100% of work in a team done through usage of

electronic technology. Same amount of respondents (N=25, 30,1%) had 51-75% of work in a team done through usage of electronic technology. 24.1% (N=20) of the respondents had 26-50% of work in a team done through usage of electronic technology. 15.7% (N=13) of the respondents had 0-25% of work in a team done through technology. These result distributed roughly according normal curve (skewness=-0.30, kurtosis=-1.13).

3. RESULTS

Analysis was conducted with IBM SPSS Statistics (version 21.0) and IBM SPSS AMOS (version 22.0). The formulated research questions: "*How team trust, team commitment and efficacy beliefs influence virtual team perceived effectiveness?*" and "*Does the degree of virtuality have some impact on virtual team perceived effectiveness?*" will be proceeded in this chapter with analysis of perceived virtual team effectiveness relationships to other measured variables. After that follows confirmative factor analysis to study latent factors and exploratory factor analysis to specify independent dimensions. Structural model of fit to the data and predictive regression model of perceived virtual team effectiveness will be conducted after that. This chapter finishes with comparative analysis to investigate the mean differences between the groups and to examine the effect of degree of virtuality on perceived virtual team effectiveness.

3.1. Descriptive statistics of the scales

Team Effectiveness Scale

Mean values of effectiveness scale items' ranged from mean=3.52 to mean=4.47. Respondents had relatively high indicators on the scale item of feeling valued in their team (mean=4.47; SD=0.70), and the results were rather consistent. They had medium indicators on the item of having effective team functioning procedures (mean=3.52; SD=0.92). Highest std. deviation (SD=1.06) had scale item of team experiments doing things with different ways (mean=3.87), which mean that these results among effectiveness scale items were most spread out (see Appendix 2).

Pearson correlations between Team Effectiveness Scale items' ranged from r=0.13 to r=0.54. Significantly medium positive correlation was found (r=0.54; p<0.001) between having effective team functioning procedures and team experiments doing things with different ways. There was also found significantly medium positive correlation between having productive team meetings with clear outcomes and team experiments doing things with different ways (r=0.54; p<0.001). Significantly little if any positive correlation (r=0.23; p=0.04) was found between having productive meetings with clear outcomes and having clear agreements on roles and responsibilities (see Appendix 3).

Team Trust Scale

All mean values of trust scale items were below average, ranged from mean=2.05 to mean=2.59. Highest indicator was on the scale item of having friendly team members (mean=2.59; SD=0.54) and these results were rather consistent. Lowest indicator was on the scale item of taking into consideration one another's feelings (mean=2.05; SD=0.80), these results were on *Team Trust Scale* most spread out (see Appendix 2).

Pearson correlations between Team Trust Scale items' ranged from r=0.43 to r=0.62. Significantly medium positive correlation was found (r=0.62; p<0.001) between being able to rely on the team members and taking into consideration one another's feelings. Significantly low positive correlation was found (r=0.43; p<0.001) between having trustworthy people in the team and having friendly team members (see Appendix 4).

Affective Commitment Scale

Mean values of Affective Commitment Scale items' ranged from mean=3.29 to mean=4.25. All std. deviation values of scale items were similarly relatively high, ranging from SD=0.84 to SD=1.18, though all these scale results were spread out. Respondents had relatively high indicators on the scale item of not having a feeling to be part of the family with the team (mean=4.25; SD=1.18). They had medium indicators on the scale item of feeling strong sense of belonging with the team (mean=3.29; SD=1.07) (see Appendix 2).

Pearson correlations between Team Affective Commitment Scale ranged from r=0.12 to r=0.62. Significantly medium positive correlation was found (r=0.62; p<0.001) between team giving a personal meaning and sense of belonging to the team. There was also found significantly medium positive correlation (r=0.61; p<0.001) between being happy about spending the rest of the career with the team and sense of belonging to the team. Significantly little if any positive correlation (r=0.22; p=0.04) was found between not feeling part of the family with the team and sense of belonging to the team (see Appendix 5).

Normative Commitment Scale

Mean values of Normative Commitment Scale items' ranged from mean=2.78 to mean=4.04. All std. deviation values of scale items were similarly relatively high, ranging from SD=0.92 to SD=1.27 and though these scale results were spread out. Respondents had relatively high indicators on the scale item of the team deserves loyalty (mean=4.04;

SD= 0.92). They had medium indicators on the scale item of feeling that it is not right to leave the team, even when one has an advantage (mean=2.78; SD=1.22) (see Appendix 2).

Pearson correlations between Team Normative Commitment Scale items' ranged from r=0.33 to r=0.75. Significantly high positive correlation (r=0.75; p<0.001) was found between feeling guilty to leave the team and having a sense of obligation to the team members. Also significantly high positive correlation (r=0.70; p<0.001) was found between not to leave the team, because having a sense of obligation to team members and owing a great deal to the team. Beside that significantly medium positive correlation (r=0.68; p<0.001) was found between feeling guilty to leave the team and owing a great deal to the team. Significantly low positive correlation (r=0.33; p<0.001) was found between feeling guilty to leave the team and the team deserves loyalty (see Appendix 6).

Continuance Commitment Scale

All mean values of Continuance Commitment Scale items' were below average and ranged from mean=2.07 to mean=3.66. All std. deviation values of scale items were similarly relatively high, ranging from SD=0.89 to SD=1.17 and though these scale results were spread out. Respondents had relatively moderate indicators on the scale item of remaining always loyal to the team is not wise today (mean=3.66; SD=1.15), these results were most spread out on the Continuance Commitment Scale. Respondents had relatively low indicators on the scale item of things were better when people did entire career in one team (mean=2.07; SD=1.05), and these results were not consistent (see Appendix 2).

Pearson correlations between Continuance Commitment Scale items' ranged from r=-0.00 to r=0.43, whereby most of the correlations were statistically significantly low. Significantly low positive correlation was found (r=0.43; p<0.001) between changing nowadays teams is too often and things were better when people did entire career in one team. There was also found significantly low positive correlation (r=0.41; p<0.001) between continuing to work for the team because of loyalty and moral obligations and having been taught that it is important to remain loyal to the team. Significantly low if any positive correlation (r=0.22; p=0.04) was found between changing team often is not unethical and having been taught that is important to remain loyal to one team (see Appendix 7).

Self-Efficacy Scale

Mean values of Self-Efficacy Scale items' ranged from mean=3.16 to mean=4.47. Respondents had relatively high indicators on the scale item of feeling confident in their job ability (mean=4.47; SD=0.61), and the results were rather consistent. They had moderate indicators on the item of having some tasks that one can not do well (mean=3.16; SD=1.29), and the results were spread out. Highest std. deviation (SD=1.29) had scale item of feeling threatened when others watch their work (mean=3.16), which mean that these results among Self-Efficacy Scale items were most spread out (see Appendix 2).

Pearson correlations between Self-Efficacy Scale items' ranged from r=0.01 to r=0.63. Significant medium positive correlation was found (r=0.63; p<0.001) between being expert at one's job and being proud of one's job skills and abilities. Also significant medium positive correlation was found (r=0.54; p<0.001) between being proud of one's job skills and abilities and feeling confident in their job ability. Significantly low positive correlation (r=0.24; p=0.03) was found between poor performance is due to one's lack of ability and being expert of one's job (see Appendix 8).

Collective-Efficacy Scale

All mean values of Collective-Efficacy Scale items were above average and ranged from mean=4.12 to mean=4.48. Respondents had highest indicators on the scale item of perceiving that one's team is poor compared to other similar teams (mean=4.48; SD=0.80). They had high and consistent indicators on the scale item of team members are having excellent job skills (mean=4.35; SD=0.67). Respondents had also high indicators on the scale item of some of the team members should be fired (mean=4.30; SD=1.00) and on the scale item of not being effective as a team (mean=4.12; SD=0.99), however these results were not consistent (see Appendix 2).

Pearson correlations between Collective-Efficacy Scale items' ranged from r=0.23 to r=0.65. Significantly medium positive correlation was found (r=0.65; p<0.001) between having opinion that some members of the team should be fired due to lack of ability and having team members who cannot do their jobs well. Significantly medium positive correlation was found (r=0.57; p<0.001) between having team members who have excellent job skills and their team's ability is above average. Significant little if any positive correlation was found (r=0.23; p=0.04) between having team members who cannot do their jobs well and not being able to perform as a team as well as it should (see Appendix 9).

Perceived Group Success-Failure Scale

All mean values of Perceived Group Success-Failure Scale items were above average and ranged from mean=3.74 to mean=4.41. Respondents had relatively high indicators on the scale item of having opinion that their organization has recently suffered, because of their team mistakes (mean=4.41; SD=0.72), and the results were rather consistent. Also they had relatively high indicators on the scale item of having had little impact on the success of the larger organization as a whole by their past team performance (mean=4.10; SD=0.96), and these results were spread out. They had moderate indicators on the item of deserving an grade A+ of their team recent work (mean=3.74; SD=1.06), however these results were spread out. Respondents also had moderate indicators on the item of having met their goals as a team (mean=3.74; SD=0.86), and these results were consistent (see Appendix 2).

Pearson correlations between Perceived Group Success-Failure Scale items' ranged from r=0.02 to r=0.61. Significantly medium positive correlation was found (r=0.61; $p<0.001$) between deserving an grade A+ of one's team recent work and having met their goals as a team. Significantly little if any positive correlation (r=0.24; $p<0.001$) was found between deserving an grade A+ of one's team recent work and having had little impact on the success of the larger organization as a whole by their past team performance. Also significantly little if any positive correlation (r=0.24; $p<0.001$) was found between deserving an grade A+ of one's team work and their organization has recently suffered, because of their team mistakes (see Appendix 10).

On the basis of all eight different scales measured eight sum indexes (Team Effectiveness Sum Index, Team Trust Sum Index, Affective Commitment Sum Index, Normative Commitment Sum Index, Continuance Commitment Sum Index, Self-Efficacy Sum Index, Collective-Efficacy Sum Index, Perceived Group Success-Failure Sum Index) were computed considering the items each measured scale consisted of (see Table 2).

Table 2. Descriptive statistics for sum indexes

		Team Effective-ness	Team Trust	Affective Commit-ment	Normative Commit-ment	Conti-nuance Commit-ment	Self-Efficacy	Collec-tive-Efficacy	Perceived Group Success-Failure
N	Valid	83	83	83	83	83	83	83	83
	Miss-ing	0	0	0	0	0	0	0	0
Mean		31.87	9.33	23.51	19.18	23.07	39.66	30.02	15.98
Std. Deviation		4.85	2.20	4.34	5.27	4.30	5.192	4.20	2.41
Minimum		15.00	4.00	12.00	8.00	15.00	24.00	18.00	8.00
Maximum		39.00	12.00	30.00	30.00	35.00	50.00	35.00	20.00

Team Effectiveness Sum Index and Team Trust Sum Indexes were significantly highly positively correlated ($r=0.71$; $p<0.001$). Team Effectiveness Sum Index had three significant moderate positive correlations with: Affective Commitment Sum Index ($r=0.58$; $p<0.001$), Group Success-Failure Sum Index ($r=0.53$; $p<0.001$) and Collective-Efficacy Sum Index ($r=0.46$; $p<0.001$). Team Effectiveness Sum Index was not significantly correlated with Continuance Commitment Sum Index. Other sum indexes had significantly low positive correlation with Team Effectiveness Sum Index (see Appendix 11).

Team Trust Sum Index was significantly moderately positively correlated with Affective Commitment Sum Index ($r=0.61$; $p<0.001$). Team Trust Sum Scale was not significantly correlated with Continuance Commitment Sum Scale and Self-Efficacy Sum Index. Other sum indexes had significantly low positive correlation with Team Trust Sum Index (see Appendix 11).

Affective Commitment Sum Index had four significant moderate positive correlated with: Team Trust Sum Index ($r=0.61$; $p<0.001$), Team Effectiveness Sum Index ($r=0.58$; $p<0.001$), Normative Commitment Sum Index ($r=0.57$; $p<0.001$), Group Success-Failure Sum Index ($r=0.50$; $p<0.001$). Affective Commitment Sum Index was not significantly correlated with Self-Efficacy Sum Index. Affective Commitment Sum Index had significant little if any positive correlation with Continuance Commitment Sum Index ($r=0.24$; $p=0.03$) (see Appendix 11).

Normative Commitment Sum Index had two significant moderate positive correlated with: Affective Commitment Sum Index ($r=0.57$; $p<0.001$) and Continuance Commitment Sum Index ($r=0.55$; $p<0.001$). Normative Commitment Sum Index was not significantly correlated with Self-Efficacy Sum Index and with Collective-Efficacy Sum Index (see Appendix 11).

Continuance Commitment Sum Index was significantly moderately positively correlated with Normative Commitment Sum Index (r=0.55; p<0.001). Continuance Commitment Sum Index was not significantly correlated with Team Effectiveness Sum Index, Team Trust Sum Index, Self-Efficacy Sum Index, Collective-Efficacy Sum Index, Group Success-Failure Sum Index. Continuance Commitment Sum Index had significantly little if any positive correlation with Affective Commitment Sum Index (see Appendix 11).

Self-Efficacy Sum Index had significant low positively correlated with Group Success-Failure Sum Index (r=0.33; p=0.00), Collective-Efficacy Sum Index (r=0.31; p=0.01) and Team Effectiveness Sum Index (r=0.25, p=0.02). Other sum indexes were not significantly correlated with Self-Efficacy Sum Index (see Appendix 11).

Collective Efficacy Sum Index had significantly high positive correlation with Perceived Group Success-Failure Sum Index (r=0.69; p<0.001). Collective-Efficacy Sum Scale had three significant moderate positive correlated with: Team Effectiveness Sum Index (r=0.46; p<0.001), Team Trust Sum Index (r=0.42; p<0.001) and Affective Commitment Sum Index (r=0.35, p<0.001). There was found significant low positive correlation with Collective-Efficacy Sum Index and Self-Efficacy Sum Index (r=0.31, p=0.01). Collective-Efficacy Sum Index was not significantly correlated with Normative Commitment Sum Index and Continuance Commitment Sum Index (see Appendix 11).

Perceived Group Success-Failure Sum Index was significantly moderately correlated with Team Effectiveness Sum Index (r=0.53; p<0.001), Affective Commitment Sum Index (r=0.50; p<0.001). Group Success-Failure Sum Index had significant medium positive correlation with Team Trust Sum Index (r=0.43; p<0.001). Group Success-Failure Sum Index was not significantly correlated with Continuance Commitment Sum Index. Other sum indexes had low correlations or were not significantly correlated with Self-Efficacy Sum Index (see Appendix 11).

3.2. Confirmative factor analysis

Based on previously found correlations and literature review a theoretical model was conceptually derived ahead (see Figure 5). Confirmative factor analysis was conducted in SPSS AMOS. Model with non-validated scales displayed non-satisfactory fit to the data: χ^2=688.99, df=374, p=0.00, CFI=0.71, RMSEA=0.1. χ^2/df is smaller than 2.0 as it is recommended, but CFI is smaller than the recommended minimum 0.9 and RMSEA is bigger than the recommended maximum 0.08 (Brown, Tinsley, 2000).

Due to small sample size and not using the validated original scales, the afore mentioned scales were adapted, modified and translated into Estonian. The factor loadings in the current sample assembled to different factors. It demonstrated the need to validate the scales used in current study.

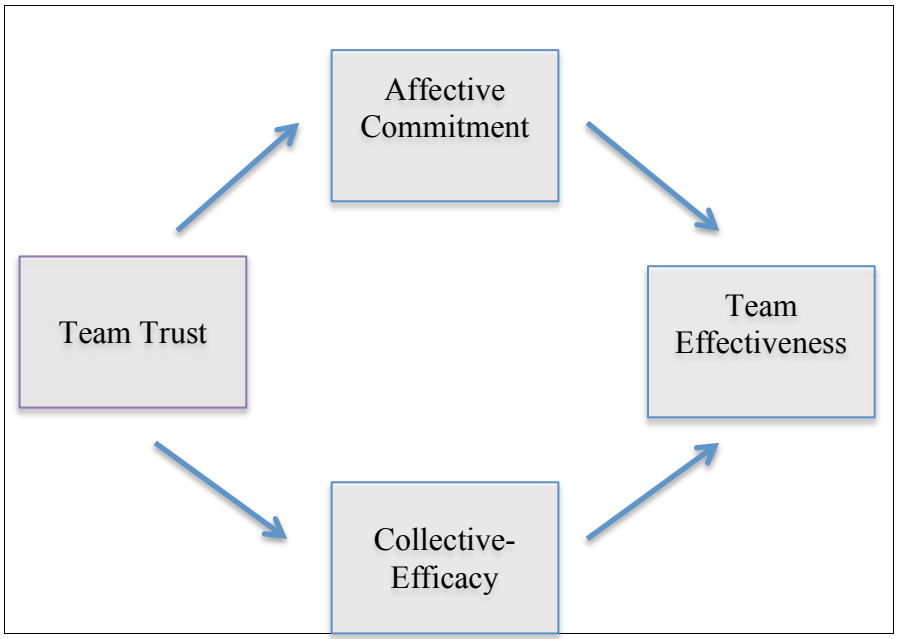

Figure 5. Hypothesised model

3.3. Exploratory factor analysis

The Kaiser-Meyer-Olkin measure of sampling adequacy of all eight measured scale items: Team Effectiveness Scale, Team Trust Scale, Affective Commitment Scale, Normative Commitment Scale, Continuance Commitment Scale, Self-Efficacy Scale, Collective-Efficacy Scale, Group Success-Failure Scale revealed a value of 0.66 ($p<0.001$) and it referred to the appropriateness to conduct factor analysis to find out how many common factors are measured with the variables.

A principal components analysis was conducted on the 53 items of all used scales to determine the number of factors to retain. The scree plot indicated that seven factors could be extracted (see Figure 6). Factor 1 and Factor 2 explained 21.8% and 8.4% of total variance, respectively. According to the results of factor analysis the author became to the conclusion that as Collective-Efficacy Scale and Perceived Group Success-Failure Scale were highly correlated ($r=0.69$; $p<0.001$), though familiar and to improve the measures these two scales were merged into one factor.

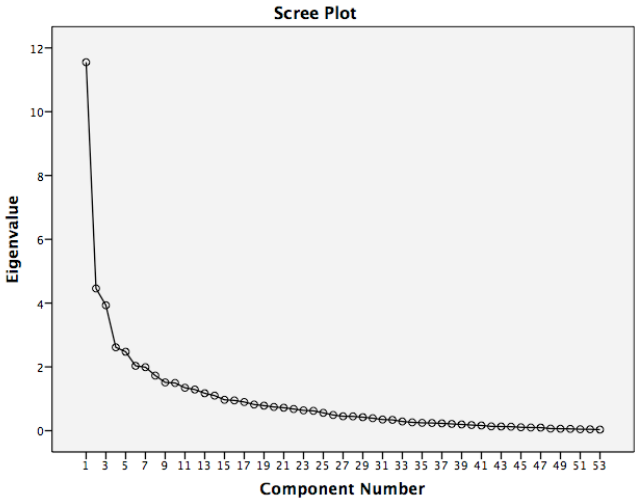

Figure 6. A scree plot of the measured scales, which consisted of 53 items

According to rotated component matrix items with low factor loadings were removed. Also items that belonged to several components and had similar factor loadings were removed. According to factor loadings seven validated scales were formed: Team Effectiveness Validated Scale (consisting of six items), Team Trust Validated Scale (consisting of four items), Affective Commitment Validated Scale (consisting of five items), Normative Commitment Validated Scale (consisting of five items), Continuance Commitment Validated scale (consisting of five items), Self- Efficacy Validated Scale (consisting of seven items), Collective-Efficacy Validated Scale (consisting of nine items). For all measures the Cronbach's alphas were above the 0.70 (see Table 3), except for Continuance Commitment Scale (α=0.69), which approximately reached the value, therefore these validated scales were reliable.

Table 3. Cronbach's alphas of validated scales

Validated Scale	Cronbach's alpha
1) Team Effectiveness	0.83
2) Team Trust	0.83
3) Affective Commitment	0.78
4) Normative Commitment	0.81
5) Continuance Commitment	0.69
6) Self-Efficacy	0.77
7) Collective-Efficacy	0.83

3.4. Structural analysis

To test a structural model that was conceptually derived ahead with validated scales, structural equation modeling (SEM) was performed in SPSS AMOS with maximum likelihood estimation. The model displayed moderate satisfactory fit to the data (see Figure 7) with following parameters: χ^2=357.95, df=248, p=0.00, CFI=0.86, RMSEA=0.07. χ^2/df is smaller than 2.0 as it is recommended, CFI reaches approximately to the recommended minimum 0.9 and RMSEA is smaller than the recommended maximum 0.08 (Brown, Tinsley, 2000).

Because of a small sample size and moderate results of the model, where trust is input and perceived virtual team effectiveness is output, it could be accepted as pilot model. The model takes into consideration the theoretical principals of constructing a model, where the input is psychological construct and the output is behavioral construct.

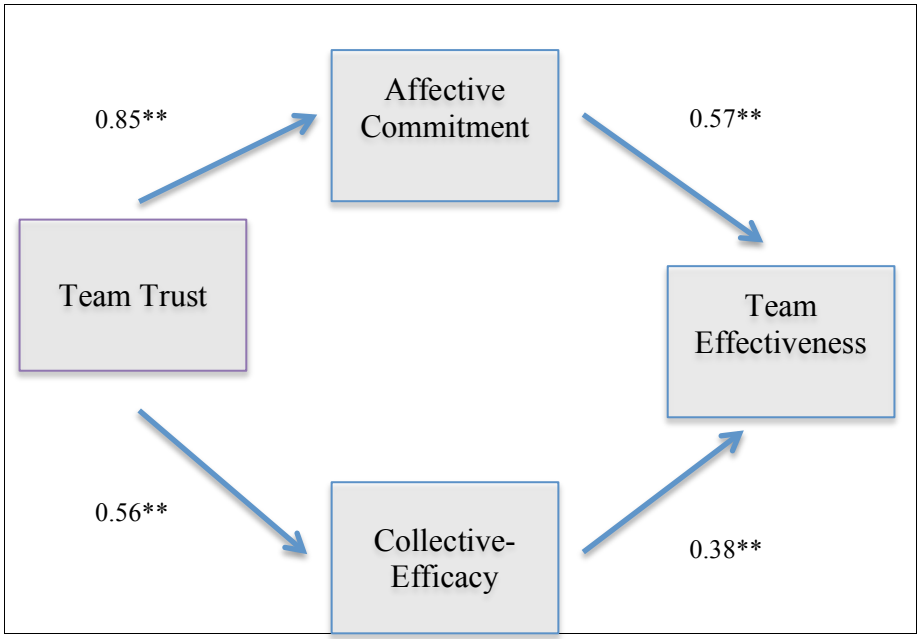

Figure 7. Results of structural equation modeling
p<0.001**

3.5. Hierarchical regression analysis

Using the composed seven validated scales and collected background information multiple regression analysis was conducted to test the relationships with Team Effectiveness Validated Scale. A multiple regression analysis with team effectiveness as a dependent variable and other 6 scales as independent variables was conducted, where each

variable was added by step (see Table 4). It was found that among collected background information one variable had statistically significant effect at Step 1, but this variable operated only independently and though were not added into the final regression model. Variable E*xperience working in the concrete team* (less than a year; 1-5 years; 6-10 years; 11-15 years; 16 and more years) predicted 4.7% (p=0.05) variance in team effectiveness.

In the final regression model descriptiveness of team effectiveness increased from 27% to 56%. It was statistically significantly found that 56% of the descriptiveness of the perceived virtual team effectiveness could be predicted by *collective-efficacy, affective commitment* and *team trust*.

Table 4. Hierarchical regressions results for perceived effectiveness of virtual teams entered by three steps

	Variable	R^2	ΔR^2	p	B	β
Step 1	Collective-Efficacy	0.27		0.00	0.39	0.52
Step 2	Collective-Efficacy	0.44	0.17	0.00	0.25	0.33
	Affective Commitment			0.00	0.48	0.46
Step 3	Collective-Efficacy	0.56	0.12	0.01	0.18	0.25
	Affective Commitment			0.04	0.21	0.21
	Team Trust			0.00	0.79	0.45

3.6. Comparative analysis

One-way ANOVA analysis were conducted to compare the means of the investigated sample (collected background information: gender, age, work experience, experience working in concrete team, type communication and collaboration technology and it's usage frequency, number of concrete team members, period for how long the concrete team is planned to work together, concrete team's field of activity, subject's main task in team, frequency of face-to-face meetings, frequency of communication technology mediated meetings, percentage of how much work team does by using communication technology) on dependent variables (seven validated scales: Team Effectiveness Validated Scale, Team Trust Validated Scale, Affective Commitment Validated Scale, Normative Commitment Validated Scale, Self-Efficacy Validated Scale, Collective-Efficacy Validated Scale). Effect size was also computed using Partial Eta-Squared, which can

range from 0 to 1. As results of one-way ANOVA do not reveal exact differences post hoc analysis with the Bonferroni correction for set of pairwise comparison was used.

Analysis of variance exhibited that 16.2% of the variability of *team effectiveness* is explained by team's field of activity (F=3.78; p=0.01). P values exhibit that there was significant evidence that independent variable did not have effect on team effectiveness by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per team's field of activity test (0.05/10). The pairwise comparison between the team's field of activity groups (goods, services, recommendations, development, other activity) indicated that the mean of team effectiveness was significantly higher in delivering services group than in other type of activity group (MD=3.31, p=0.05).

16.3% of the variability of *team trust* was accounted for working experience in concrete team (F=3.80, p=0.01) and 13,4% with team's field of activity (F=3.01; p=0.02). Both p values exhibit that there was significant evidence that both independent variables did not have effect on trust by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per experience working in a concrete team test (0.05/10) and per team's field of activity test (0.05/10). The pairwise comparison between the experience working in a concrete team (less than a year, 1-5 years, 6-10 years, 11-15 years, 16 and more years) indicated that the mean of trust was significantly higher less than a year experience group than in 16 and more years experience group (MD=2.91, p=0.02). The pairwise comparison between team's field of activity groups (goods, services, recommendations, development, other activity) indicated that the mean of trust was significantly higher in delivering services group than in other activity group (MD=2.05, p=0.03).

13.2% of the variability of *affective commitment* was accounted for team's field of activity (F=2.97; p=0.02). P value exhibit that there was significant evidence that independent variable did not have effect on affective commitment by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per team's field of activity test (0.05/10). The pairwise comparison between team's field of activity groups (goods, services, recommendations, development, other activity) indicated that the mean of affective commitment did not significantly differ between the team's field of activity groups.

Variability of *normative commitment* was not significantly accounted for any of the characteristics.

14.8% of the variability of *continuance commitment* was accounted for team's field of activity (F=3.40; p=0.01). P value exhibit that there was significant evidence that independent variable did not have effect on continuance commitment by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per team's field of activity test (0.05/10). The pairwise comparison between team's field of activity groups (goods, services, recommendations, development, other activity) indicated that the mean of continuance commitment was significantly higher in recommending improvements group than in producing goods group (MD=9.00, p=0.03). Also it was found that the mean of continuance commitment was significantly higher in recommending improvements group was than in developing new products (MD=6.10, p=0.01).

5.3% of the variability of *self-efficacy* was accounted for gender (F=4.51; p=0.04). P values exhibit that there was significant evidence that independent variable did not have effect on self-efficacy by chance. One-way ANOVA analysis indicated that the mean of self-efficacy was significantly higher (t=2.12; df=81; p=0.04) among male group (M=26.19, SD=3.01) than in female group (M=24.80, SD=2.91).

14.4% of the variability of *collective-efficacy* was accounted for period for how long the concrete team is planned to work together (F=2.59; p=0.03). P values exhibit that there was significant evidence that independent variable did not have effect on collective-efficacy by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per team's field of activity test (0.05/15). The pairwise comparison between period for how long the concrete team is planned to work together (until a couple of months; until one year; until two years; until three years; for an indefinite period, other set of time) indicated that the mean of collective-efficacy was significantly lower in group that was planned to work together until one year than in group that was planned to work together for an indefinite period (MD=7.20, p=0.03).

Based on the items: *Frequency of communication technology mediated team meetings* and *Percentage of how much work in a team is done by using electronic technology* virtuality index was composed. Composed virtuality index consisted of three groups: low, medium and high level of virtuality.

The item *Frequency of communication technology mediated team meetings* answers 1-3 time in a month, a few times in a quarter, a few times in a year and less than that were coded as 0. Answers 4-6 times in a month and 7-9 times in a month were coded as 1. The item *Percentage of how much work in a team is done by using electronic technology*

answers 0-25% and 26-50% was coded as 0. Answers 51-75% and 76-100% were coded as 1.

Based on both items were composed three groups: highly virtual (were both coding values were one); medium virtual (were one coding was one and other zero), low virtual (were both coding values were zero). According to previous coding procedure the descriptive statistics is showed in Table 6.

Table 5. Descriptive statistics of the virtuality index

Virtuality of the Group		Frequency	Percent
Valid	Low virtuality	24	28.9
	Medium virtuality	35	42.2
	High virtuality	24	28.9
	Total	83	100.0

One-way ANOVA analysis was conducted to compare the means and to examine the effect of virtuality on dependent variable (seven validated scales: Team Effectiveness Validated Scale, Team Trust Validated Scale, Affective Commitment Validated Scale, Normative Commitment Validated Scale, Continuance Commitment Validated Scale, Self-Efficacy Validated Scale, Collective-Efficacy Validated Scale). Effect size was also computed and for that Partial Eta-Squared was used, which can range from 0 to 1.

9.7% of the variability of *continuance commitment* was explained by Virtuality Index (F=4.32; p=0.02). P value exhibit that there was significant evidence that independent variable did not have effect on continuance commitment by chance. Post hoc analysis was conducted by using Bonferroni adjusted alpha levels of 0.05 per virtuality (0.05/3). The pairwise comparison between virtuality groups (low virtuality, medium virtuality, high virtuality) indicated that the mean of continuance commitment was significantly lower in high virtuality group than in low virtuality group (MD=2.50, p=0.04) and also it was fount that continuance commitment was significantly lower in high virtuality group than in medium virtuality group (MD=2.43, p=0.03). Other 6 measured scales, also including *team effectiveness* did not reveal statistically significant differences in virtuality index.

DISCUSSION AND CONCLUSIONS

The litreture review indicates that the essence of virtual teams is challenged: lack of collocation and the need to use communication technology, which affects team processes, interactions and performance outcomes. To increase the effective functioning of virtual teams, the scientific research has to investigate what virtual team members need to overcome in order to achieve that. Albeit, little controlled findings have been found what contributes for sustaining effectiveness in virtual teams. The aim of this study was to establish the effect of psychosocial factors: team trust, team commitment and efficacy beliefs on perceived virtual team effectiveness. Because of the feeling of isolation, loss of social identity, anonymity and depersonalization effect, communication technology reduces team trust and team commitment. Furthermore, it has challenges for developing efficacy beliefs in virtual teams. Also it has been argued that the lack of face-to-face communication sets challenges for virtual team effectiveness. Previous literature review of the topic indicated to indirect relationship between these variables. Only few studies of virtual teams demonstrated the direct relationship between team effectiveness and team trust, team effectiveness and team commitment and team effectiveness and efficacy beliefs. According to the knowledge of the author of the study, there are no studies on the impact of degree of virtuality on virtual team effectiveness. The thesis aimed to bring out the importance of degree of virtuality and psycho-social factors on virtual team perceived effectiveness. The study proposed the following questions: "*How does the team trust, team commitment and efficacy beliefs influence virtual team perceived effectiveness?"* and *"Does the degree of virtuality have some impact on virtual team perceived effectiveness?"*. Consequently, as virtual teams provide competitive advantage and there is trend that more tasks will be done in virtual teams, there is a strong need for a deeper understanding of the topic, which can be an advantage for both employees and organizations.

Current paper does not support the previous assumptions that not being physically proximal and usage of electronic communication decreases virtual team effectiveness. The comparative analysis between low, medium and high virtuality groups did not reveal statistically significant differences on perceived virtual team effectiveness. One of the possible explanations could be that as most of the respondents had at least one face-to-face team meetings in a month, it appeared to be sufficient amount of collocation. Secondly, most of the respondents were using different type of communication technology and the

match between task demands and the technology used was speculatively met. Thirdly, as virtual teams are flexible and adaptive and are composed of highly qualified individuals the population itself, members of virtual teams, are different from members of collocated teams. They might have better skills, knowledge and supportive inner characteristics that have impact on individual participation and interpersonal traits, though the effectiveness is impacted more by the population characteristics than the virtuality factor. Fourthly, it has been found that virtual team motivational factors are embedded more in the task itself, which is inherent in team empowerment, though the effectiveness is impacted more by the motivational factors than the virtuality factor. Whether effectiveness of virtual teams is impacted by those discussed factors should be investigated further.

Present research supports previous findings that, team trust is fundamental for any team performance, it is also significantly positively related with perceived virtual team effectiveness. Meaning that the more trust is in virtual team the more a virtual team is perceived as effective. On the point of as trust in virtual teams is more related with actions than goodwill, then trust enlarges efforts and exposes cooperation, which is related with higher perceived effectiveness.

The sample has indicated that team commitment is significantly positively related with perceived virtual team effectiveness only at affective commitment level, no statistically significant or sufficient evidence was found for normative commitment and continuance commitment. Meaning that, the more affective the attachment is to virtual team's goals and values, the more a virtual team is perceived as effective. Previous literature has found positive relation between virtual team effectiveness and team commitment, but according to EBSCO database there is no research done, which studies separately affective, normative and continuance commitment relation with virtual team effectiveness. One of the possible explanations can be that as there are speculations that communication technology reduces commitment then it has influence on normative commitment, which is related to obligation to stay, and on continuance commitment, which is related to the need to stay. As affective commitment is related with goals and values then affective commitment is developed through goal setting and work processes and speculatively is not conclusively impacted by electronic communication limitations. As no antecedents have been found for normative commitment, it could be speculated that moral obligation, what is the right thing to do, is a complicated process to impact in the virtual world. Antecedents for continuance commitment have been found to be socialization experiences and organizational investments. As electronic communication is

challenged to overcome lack of face-to-face communication deficit and extrinsic motivational factors like evaluation, recognition from external leaders, and feedback from organisations, then it could be supposed that continuance commitment is also a complicated phenomenon to have an impact in the virtual teams. Another explanation can be that as virtual teams are empowered and empowerment has been found to be related with autonomy, potency and impact then normative commitment and continuance commitment have negative relations with empowerment. Whether the commitment of virtual teams are impacted by those discussed factors and their relations with virtual team effectiveness should further be investigated.

The results of this study rise a contradiction to the previously discussed findings about that the self-efficacy beliefs are considered to have direct impact on team performance outcome. No significantly sufficient correlation was found for the relation between self-efficacy and perceived virtual team effectiveness. One of the possible explanations can be that self-efficacy, as what one thinks will be able to accomplish with those skills is not sufficient definition in remote work setting, and should also include computer self-efficacy definition about persons judgment of one's capability to use a computer. At the moment these two phenomenons are considered to be associated, but exist and are researched separately. Whether or not it should be like that is recommended for further investigation.

Current study supported the previous findings that collective-efficacy has a significantly positive relation with perceived virtual team effectiveness. Meaning that the more a team shares a belief about their capability of performance the more a virtual team is perceived as effective. On the point of as collective-efficacy is related with compensative behavior and higher motivational investment, then collective-efficacy enlarges efforts, group agreement, process effectiveness and reduces time of completion, which is related with higher perceived effectiveness.

Present research indicates that by means of multiple regression analysis 56% of perceived virtual team effectiveness can be significantly predicted by collective-efficacy, affective commitment and team trust. Structural equation modeling displayed moderate satisfactory fit to the data. In the model there were significant directions between observable variables, where trust was input and perceived virtual team effectiveness was output. Collective-efficacy and affective commitment played significant role between trust and perceived virtual team effectiveness. Meaning that when trust is attained through frequent and meaningful interaction, were actions and expectations are made explicit and

at the same time there are agreed-upon timelines, then these conditions have positive impact on affective commitment and collective-efficacy beliefs. Trust helps to overcome uncertainties in virtual team and leads to affective commitment, which is cognitive abstraction and contributes to behavior, what is linked with team goals and which leads to gain effective team performance. Trust creates conditions for collaboration in virtual team and it has been found to be necessary factor for building collective-efficacy beliefs, which influence how much effort they choose to put in and how long they stay in power when they fail to produce results, which leads to gain effective team performance. Previous virtual team findings support that trust helps to gain adequate commitment and build collective-efficacy beliefs, but those results did not specify trust relation with affective commitment and trust relation with collective-efficacy beliefs in virtual teams. Current study proposes that trust impacts significantly positively both variables, affective commitment and collective-efficacy, which contribute significantly to perceived virtual team effectiveness. Because of the moderate satisfactory fit to the data, the latter notion however requires further investigation and the directional effect should be studied on a bigger sample.

There are certain limitations of the current study that should be considered when interpreting the results. First, the sample size. Taking into consideration the theoretical principals of regression analysis, structural modelling and comparative analysis, current study sample did not satisfy the absolute minimum requirement. Thus, current study is proposed as a pilot study on virtual team effectiveness field and it is feasible to interpret the results and finding from the population covered. A study should be replicated with more representative population, which makes it possible to generalize the results. Second, the design of the study has two problematic points. The questionnaire was sent to 76 organizations and there were 83 respondents, it was not known how many participants from how many organizations responded. Only one member from a team is not sufficient for analyzing the results at the team level, so the number of team members from one unit under study should be controllable to generalize the results to whole team. The questionnaire of the current study was modified and adapted, so the reliability and validity of the questionnaire scales should be controlled with more representative population. Third, previous studies have compared virtual teams and collocated teams and found differences between them. As there is not one definition for how much virtual teams have face-to-face and electronic communications, it is complicated to operationalize this

variable. Thus, with similar operationalization of the virtuality variable should be conducted to confirm the findings of the current study.

SUMMARY

The theoretical part of this thesis brought out the concepts of: change from collocation teams to virtual team, communication in virtual team, trust in virtual team, commitment in virtual team, efficacy beliefs in virtual team and effectiveness in virtual team. The first part is focused on the lack of socio-emotional information in virtual teams, which sets challenges for virtual team psycho-social processes, outcomes and impacts through virtual team effectiveness. The second part explored the research design, methodology and described the sample pool. The answers on the research questions were found through the questionnaire, which was sent via e-mail to the contact persons of 76 Estonian organizations. The third part reflected the results of the study that 56% of the perceived virtual team effectiveness could be predicted with team trust, affective commitment and collective-efficacy beliefs, were directions between the observable variables emerged, that trust has significant impact on affective commitment and collective-efficacy beliefs, which together impact significantly the perceived virtual team effectiveness. The study was a pilot one, characterized by the small sample pool, no generalized conclusions can not be made.

According to the knowledge of the author of the study, this study is the first to examine the influence of the team trust, team commitment and efficacy beliefs on virtual team perceived effectiveness using virtual team members, who are working today in actual organizations. Extension to that, current study explored the effect of the degree of virtuality to virtual team perceived effectiveness. Author of this research has assumptions that the results and findings of this work contribute to further theoretical and empirical development of the understanding of the virtuality factor and contribute to a more complete model of virtual team perceived effectiveness and its relation with psycho-social factors.

However, the results of current research can find implication in managing virtual teams with the intention to promote team processes, social needs and contribute to team outcomes. The results suggest that building trust and facilitating affective commitment and collective-efficacy beliefs should get remarkable attention to increase effectiveness of virtual teams. It seems reasonable to implement intervention activities that would impact psycho-social processes, through what the team is capable to work interdependently and

use appropriate task performance strategies, which impact team effectiveness (Hackman, Oldham, 1980).

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APPENDIXES

Appendix 1. Questionnaire

Virtuaalse meeskonnatöö uuring

Tere hea vastaja!

Olen Tallinna Tehnikaülikooli töö- ja organisatsioonipsühholoogia magistritudeng Anneliis Tali. Palun teilt 10-15 minutit, et osaleda minu magstritööga seotud uurimuses. Kõik vastused on konfidentsiaalsed ning tulemusi kasutatakse ainult antud uurimustöö eesmärkidel. Vastamisel palun juhinduge ühest kindlast meeskonnast, mille koosseisus Te töötate. Uurimusega seotud küsimustele vastan meeleldi, kui kirjutate aadressile tali.anneliis@gmail.com. Kõigi vastanute vahel, kes on nõus enda telefoni numbrit mulle avalikustama, läheb loosimisse 20 eurone Piletilevi kinkekaart.
Kiiresti muutuvas maailmas on kõige muu kõrval muutunud ka töö: see - kuidas ja kus tööd tehakse, milliseid vahendeid kasutatakse jms. Iseloomulik on ka see, et üha enam tehakse tööd meeskonnas, kasutades infotehnoloogilisi abivahendeid. Tööd tehakse asukohast sõltumata, mis omakorda tähendab, et meeskonnaliikmed ei kohtu päevade,nädalate või kuude kaupa üksteisega. Koostöö toimub enamasti emaili, telefoni, Skype' või mõne muu elektroonse abivahendi teel. Et Eesti on maailmas tuntud kui e-riik, on see hea paik virtuaalse meeskonnatöö uurimiseks. Kuna see valdkond on uus ning alles hiljaaegu akadeemilisse huviorbiiti sattunud, siis on Teil käesolevale küsimustikule vastates suur panus antud valdkonna kohta uue teadmise loomisse.

* Kohustuslik

1. Sugu *
- Mees
- Naine

2. Vanus *
- 18-21
- 22-25
- 26-30
- 31-40
- 41-50
- 51-60
- üle 60

3. Töökogemus aastates *
- alla aasta
- 1-5 aastat
- 6-10 aastat
- 11-15 aastat
- 16 ja enam aastat

4. Antud meeskonnas töötamise kogemus aastates *
- alla aasta
- 1-5 aastat
- 6-10 aastat
- 11-15 aastat
- 16 ja enam aastat

5. Milline on teie kogemus tehnoloogiliste abivahendite (arvuti, nutitelefon jms) kasutamisest töös suhtlemisvahendina? *
- Kasutan korduvalt iga päev
- Kasutan üks kord päeva jooksul
- Kasutan kord paari päeva jooksul
- Kasutan mõni kord nädalas
- Kasutan harvemini
- Muu:

6. Milliseid elektroonseid kommunikatsioonivahendeid teie meeskond kasutab? *

Email
Kaugside
Videokonverents
Koostööd toetav tarkvara
Intranet
Muu:

7. Milline on teie arvamus tehnoloogiliste abivahendite kasutamise efektiivsusest suhtlemisvahendina?

8. Liikmete arv teie meeskonnas *
2 - 5
6 - 8
9 - 12
üle 12

9. Palun vali, kui kaua on teie meeskond määratud koos töötama *
kuni paar kuud
kuni aasta
kuni 2 aastat
kuni 3 aastat
tähtajatult
Muu:

10. Palun vali valdkond, millega teie meeskond põhiliselt tegeleb: *
Meeskond toodab/valmistab tooteid
Meeskond pakub teenust
Meeskond annab soovitusi toodete/teenuste täiendamiseks/parandamiseks
Meeskond töötab välja/arendab uusi tooteid ja teenuseid
Muu:

11. Palun vali, milline on valdavalt teie ülesanne oma meeskonnas: *
Olen keskendunud peamiselt mõtlemisega seotud ülesannetele
Olen keskendunud peamiselt tegutsemisega seotud ülesannetele
Olen keskendunud peamiselt suhetega seotud ülesannetele
Muu:

12. Mitu korda keskmiselt toimuvad teie meeskonnal näost-näkku koosolekud? *
1 - 3 korda kuus
4 - 6 korda kuus
7 - 9 korda kuus
paar korda kvartaris
paar korda aastas
harvemini
Muu:

13. Mitu korda kuus keskmiselt toimuvad teie meeskonnal koosolekud, kus kasutatakse nende läbiviimiseks elektroonseid kommunikatsioonivahendeid? *
1 - 3 korda kuus
4 - 6 korda kuus
7 - 9 korda kuus
Muu:

14. Palun vali, kui suure osa tööst moodustab see töö, mille teie meeskond teeb kasutades elektroonseid vahendeid: *
0-25%
25-50%
50-75
75-100

15. Kuivõrd te nõustute väitega "Minu meeskonna liikmete vahelist suhtlemist iseloomustab avatus ning osavõtlikkus" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

16. Kuivõrd te nõustute väitega "Minu meeskonna kohtumised on produktiivsed ning lõppevad selgete sihtide ning kokkulepetega" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

17. Kuivõrd te nõustute väitega "Minu meeskonnas on välja kujunenud kindel juht" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

18. Kuivõrd te nõustute väitega "Minu meeskonnas on kokku lepitud kindlad rollid ning kohustused" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

19. Kuivõrd te nõustute väitega "Ma tunnen end meeskonna liikmena väärtuslikuna" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

20. Kuivõrd te nõustute väitega "Minu meeskonnas on efektiivsed protseduurid, mis toetavad meeskonnatööd" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

21. Kuivõrd te nõustute väitega "Minu meeskonnas on selged kokkulepped selle kohta, kuidas otsuseid tehakse" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

22. Kuivõrd te nõustute väitega "Minu meeskond on eksperimenteeriv ning loov, leidmaks uusi viise, kuidas veelgi tõhusamalt töötada" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

23. Kuivõrd te nõustute väitega "Minu meeskonnaliikmed on enamasti usaldusväärsed" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

24. Kuivõrd te nõustute väitega "Minu meeskonnaliikmed arvestavad tavaliselt üksteise tunnetega" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

25. Kuivõrd te nõustute väitega "Minu meeskonnaliikmed on enamasti sõbralikud" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

26. Kuivõrd te nõustute väitega "Kui mul on raske, siis võin toetuda oma meeskonnaliikmetele" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

27. Kuivõrd te nõustute väitega "Ma oleksin väga õnnelik, kui saaksin oma edasist karjääri teostada selles meeskonnas" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

28. Kuivõrd te nõustute väitega "Ma tunnen, et meeskonna mured on ka minu mured" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

29. Kuivõrd te nõustute väitega "Ma ei tunne ennast meeskonnaliimete hulgas omana" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

30. Kuivõrd te nõustute väitega "Ma ei tunne tugevat ühtekuuluvustunnet oma meeskonnaga" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

31. Kuivõrd te nõustute väitega "Meeskonnal on minu jaoks oluline isiklik tähendus" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

32. Kuivõrd te nõustute väitega "Ma olen oma meeskonda kiindunud" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

33. Kuivõrd te nõustute väitega "Ma ei tunne kohustust, et oma meeskonda pikemaks ajaks jääda" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

34. Kuivõrd te nõustute väitega "Tunnen, et ei oleks õige enda meeskonnast lahkuda, isegi siis, kui mul avaneks mõni uus ja parem võimalus" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja

naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

35. Kuivõrd te nõustute väitega "Tunneksin süüd, kui lahkuksin enda meeskonnast" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

36. Kuivõrd te nõustute väitega "Minu meeskond on ära teeninud minu lojaalsuse" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

37. Kuivõrd te nõustute väitega "Kohusetunde tõttu enda meeskonnaliikmete ees ei lahkuks ma enda meeskonnast" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

38. Kuivõrd te nõustute väitega "Ma tunnen, et võlgnen enda meeskonnale midagi" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

39. Kuivõrd te nõustute väitega "Ma arvan, et tänapäeval inimesed vahetavad liiga tihti meeskondi" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

40. Kuivõrd te nõustute väitega "Ma arvan, et inimene ei pea alati olema lojaalne oma meeskonnale" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

41. Kuivõrd te nõustute väitega "Minu arvates ei ole meeskonna tihe vahetamine ebaeetiline" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

42. Kuivõrd te nõustute väitega "Üks peamistest põhjustest, miks ma jätkan töötamist oma meeskonnas seisneb lojaalsuses ja moraalses kohustuses" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

43. Kuivõrd te nõustute väitega "Kui ma saaksin mõnest teisest meeskonnast parema tööpakkumise, peaksin õigeks mitte oma meeskonnast lahkuda" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

44. Kuivõrd te nõustute väitega "Mind on õpetatud uskuma, et ühele meeskonnale lojaalseks jäämine on tähtis" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

45. Kuivõrd te nõustute väitega "Asjad olid paremad ajal, mil inimesed tegid kogu oma karjääri ühes meeskonnas" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

46. Kuivõrd te nõustute väitega "Ma arvan, et oma meeskonnale lojaalseks jäämine ei ole tänapäeval kasulik ega arukas" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

47. Kuivõrd te nõustute väitega "Ma usun oma tööalastesse võimetesse" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

48. Kuivõrd te nõustute väitega "Minu töös on mõned kohustuslikud ülesanded, mida ma ei oska teha hästi" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

49. Kuivõrd te nõustute väitega "Kui mu töö tulemus on halb, siis tuleneb see tavaliselt minu vähesest võimest" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

50. Kuivõrd te nõustute väitega "Ma kahtlen enda võimetes oma tööd hästi teha" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

51. Kuivõrd te nõustute väitega "Mul on kõik vajalikud oskused, et teha oma tööd väga hästi" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

52. Kuivõrd te nõustute väitega "Enamik inimesi minuga samalt erialalt suudab seda tööd teha paremini kui mina" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

53. Kuivõrd te nõustute väitega "Ma olen oma töös ekspert" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

54. Kuivõrd te nõustute väitega "Tulenevalt minu puudulikest oskustest, on minu tulevikuvaated sellel tööalal piiratud" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

55. Kuivõrd te nõustute väitega "Olen uhke oma tööalaste teadmiste ning oskuste üle" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

56. Kuivõrd te nõustute väitega "Tunnen end ebamugavalt, kui teised jälgivad mind töötamas" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

57. Kuivõrd te nõustute väitega "Meeskond, kus ma töötan, on oma võimekuselt üle keskmise" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

58. Kuivõrd te nõustute väitega "Meeskond, kus ma töötan, on nõrk, võrreldes teiste sarnast tööd tegevate meeskondadega" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

59. Kuivõrd te nõustute väitega "Minu meeskond ei ole võimeline saavutama nii häid tulemusi, kui ta peaks" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

60. Kuivõrd te nõustute väitega "Minu meeskonna liikmetel on väga head tööoskused" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

61. Kuivõrd te nõustute väitega "Mõned minu meeskonna liikmed tuleks vallandada nende väheste võimete tõttu" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

62. Kuivõrd te nõustute väitega "Minu meeskond ei ole väga efektiivne" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

63. Kuivõrd te nõustute väitega "Mõned minu meeskonna liikmed ei oska teha oma tööd hästi" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

64. Kuivõrd te nõustute väitega "Minu meeskonna viimase projekti tulemus on väärt hinnet 5+" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

65. Kuivõrd te nõustute väitega "Meeskonnana oleme saavutanud enda eesmärgid" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

66. Kuivõrd te nõustute väitega "Minu meeskonna varasem sooritus on avaldanud organisatsiooni kui terviku edule vähest mõju" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

67. Kuivõrd te nõustute väitega "Organisatsioon on kannatanud minu meeskonna tehtud vigade tõttu" *1-ei nõustu üldse; 2-pigem ei nõustu; 3-nii ja naa; 4-pigem nõustun; 5-nõustun täielikult

1 2 3 4 5

Suur tänu, et vastasite! Soovi korral on teil võimalik mulle anda anonüümset tagasisidet

Kui soovite osaleda Piletilevi kinkekaardi loosimisel, siis palun kirjutage enda telefoni number

Appendix 2. Descriptive statistics of the items of 8 scales

Scale	N	Minimum	Maximum	Mean	Std. Deviation
Team Effectiveness					
15. How strongly do you agree or disagree with the statement "Communication between my team members is open and participative"	83	2	5	4.18	.80
16. How strongly do you agree or disagree with the statement “My team meetings are productive and result in clear outcomes with agreements summerized”	83	1	5	3.96	.72
17. How strongly do you agree or disagree with the statement "My team has a determined leader"	83	1	5	4.37	.92
18. How strongly do you agree or disagree with the statement "There are clear agreements on roles and responsibilities in my team"	83	1	5	3.95	.95
19. How strongly do you agree or disagree with the statement "I feel valued as an individual member in my team"	83	2	5	4.47	.70
20. How strongly do you agree or disagree with the statement "There are effective procedures to guide my team functioning"	83	2	5	3.52	.92
21. How strongly do you agree or disagree with the statement "My team has clear agreements about how decisions will be made"	83	1	5	3.54	.97
22. How strongly do you agree or disagree with the statement "My team experiments with different ways of doing things and is creative in its approach"	83	1	5	3.88	1.06
Team Trust					
23. How strongly do you agree or disagree with the statement "Overall the people in my team are trustworthy"	83	1	3	2.47	.63
24. How strongly do you agree or disagree with the statement "Members of my team usually considerate of one another’s feelings"	83	1	3	2.05	.80
25. How strongly do you agree or disagree with the statement "The people in my team are friendly"	83	1	3	2.59	.54
26. How strongly do you agree or disagree with the statement "I could rely on those with whom I work in my team"	83	1	3	2.22	.70
Affective Commitment					
27. How strongly do you agree or disagree with the statement "I would be very happy to spend the rest of the career with this team"	83	1	5	4.06	.99
28. How strongly do you agree or disagree with the statement "I really feel as if the this team’s problems are my own"	83	1	5	4.21	.84
29. How strongly do you agree or disagree with the statement "I do not feel like part of the family with my team"*	83	1	5	4.25	1.18

30. How strongly do you agree or disagree with the statement "I do not feel emotionally attached to my team"*	83	1	5	4.04	1.14
31. How strongly do you agree or disagree with the statement "My team has a great deal of personal meaning for me"	83	1	5	3.66	1.02
32. How strongly do you agree or disagree with the statement "I feel a strong sense of belonging to my team"	83	1	5	3.29	1.07
Normative Commitment					
33. How strongly do you agree or disagree with the statement "I do not feel any obligation to remain with my team"*	83	1	5	3.52	1.14
34. How strongly do you agree or disagree with the statement "Even if I have to my advantage, I do not feel it is right to leave my team"	83	1	5	2.78	1.22
35. How strongly do you agree or disagree with the statement "I will feel guilty if I leave my team"	83	1	5	3.10	1.19
36. How strongly do you agree or disagree with the statement "My team deserves my loyalty"	83	2	5	4.04	.92
37. How strongly do you agree or disagree with the statement "I will not leave my team because I have a sense of obligation to the people in it"	83	1	5	2.90	1.27
38. How strongly do you agree or disagree with the statement "I owe a great deal to my team"	83	1	5	2.84	1.15
Continuance Commitment					
39. How strongly do you agree or disagree with the statement "I think that nowadays people change to often teams"	83	1	5	2.93	1.02
40. How strongly do you agree or disagree with the statement "I think that people should not always be loyal to their team"*	83	1	5	3.66	1.15
41. How strongly do you agree or disagree with the statement "I do not think that it is unethical to change team often"*	83	1	5	3.04	1.04
42. How strongly do you agree or disagree with the statement "One of the main reasons why I will continue working for my team lies in loyalty and moral obligations"	83	1	5	2.58	1.11
43. How strongly do you agree or disagree with the statement "If I could get a better job offer from another team, I would think that it is wrong to leave my team"	83	1	5	2.63	1.09
44. How strongly do you agree or disagree with the statement "I have been taught to believe that it is important to remain loyal to one team"	83	1	5	2.59	1.17
45. How strongly do you agree or disagree with the statement "Things were better when people did entire career in one team"	83	1	5	2.07	1.05
46. How strongly do you agree or disagree with the statement "I think that remaining loyal to one's team is not useful or wise today"	83	2	5	3.59	.89
Self-Efficacy					

47. How strongly do you agree or disagree with the statement "I have confidence in my ability to do my job"	83	3	5	4.47	.61
48. How strongly do you agree or disagree with the statement "There are some tasks required by my job that I cannot do well"*	83	1	5	3.16	1.29
49. How strongly do you agree or disagree with the statement "When my performance is poor, it is due to my lack of ability"*	83	1	5	3.43	1.08
50. How strongly do you agree or disagree with the statement "I doubt my ability to do my job"*	83	3	5	4.23	.75
51. How strongly do you agree or disagree with the statement "I have all the skills needed to perform my job very well"	83	1	5	4.05	.75
52. How strongly do you agree or disagree with the statement "Most people in my line of work can do this job better than I can"*	83	1	5	3.94	.76
53. How strongly do you agree or disagree with the statement "I am an expert at my job"	83	2	5	4.06	.80
54. How strongly do you agree or disagree with the statement "My future in this job is limited because of my lack of skills"*	83	2	5	4.45	.70
55. How strongly do you agree or disagree with the statement "I am very proud of my job skills and abilities"	83	3	5	4.28	.67
56. How strongly do you agree or disagree with the statement "I feel threatened when others watch me work"*	83	1	5	3.60	1.30
Collective-Efficacy					
57. How strongly do you agree or disagree with the statement "The team I work with has above average ability"	83	2	5	4.29	.76
58. How strongly do you agree or disagree with the statement "My team is poor compared to other teams doing similar work"*	83	1	5	4.48	.80
59. How strongly do you agree or disagree with the statement "My team is not able to perform as well as it should"*	83	1	5	4.30	.88
60. How strongly do you agree or disagree with the statement "The members of my team have excellent job skills"	83	2	5	4.35	.67
61. How strongly do you agree or disagree with the statement "Some members of my team should be fired due to lack of ability"*	83	1	5	4.30	1.00
62. How strongly do you agree or disagree with the statement "My team is not very effective"*	83	1	5	4.12	.99
63. How strongly do you agree or disagree with the statement "Some members of this team cannot do their jobs well"*	83	1	5	4.18	.94
Perceived Group Success-Failure					
64. How strongly do you agree or disagree with the statement "The recent work of my team deserves an grade A+"	83	1	5	3.74	1.06
65. How strongly do you agree or disagree with the statement "As a team we have been meeting our goals"	83	2	5	3.74	.86

66. How strongly do you agree or disagree with the statement "The past performance of this team has had little impact on the success of the larger organization as a whole"*	83	1	5	4.10	.96
67. How strongly do you agree or disagree with the statement "The organization has recently suffered because of the mistakes made by my team"*	83	2	5	4.41	.72
Valid N (listwise)	83				

* Items marked with an asterisk were reverse scored

Appendix 3. Correlations between Team Effectiveness Scale items

Item number		15.	16.	17.	18.	19.	20.	21.	22.
15.	Pearson Correlation	1.00	.43	.27	.25	.52	.47	.30	.48
	Sig. (2-tailed)		.00	.01	.02	.00	.00	.01	.00
	N	83	83	83	83	83	83	83	83
16.	Pearson Correlation	.43	1.00	.31	.23	.51	.51	.43	.54
	Sig. (2-tailed)	.00		.00	.04	.00	.00	.00	.00
	N	83	83	83	83	83	83	83	83
17.	Pearson Correlation	.27	.31	1.00	.50	.50	.43	.35	.30
	Sig. (2-tailed)	.01	.00		.00	.00	.00	.00	.01
	N	83	83	83	83	83	83	83	83
18.	Pearson Correlation	.25	.23	.50	1.00	.13	.51	.34	.19
	Sig. (2-tailed)	.02	.04	.00		.26	.00	.00	.09
	N	83	83	83	83	83	83	83	83
19.	Pearson Correlation	.52	.51	.50	.13	1.00	.53	.36	.46
	Sig. (2-tailed)	.00	.00	.00	.26		.00	.00	.00
	N	83	83	83	83	83	83	83	83
20.	Pearson Correlation	.47	.51	.43	.51	.53	1.00	.49	.54
	Sig. (2-tailed)	.00	.00	.00	.00	.00		.00	.00
	N	83	83	83	83	83	83	83	83
21.	Pearson Correlation	.30	.43	.35	.34	.36	.49	1.00	.42
	Sig. (2-tailed)	.01	.00	.00	.00	.00	.00		.00
	N	83	83	83	83	83	83	83	83
22.	Pearson Correlation	.48	.54	.30	.19	.46	.54	.42	1.00
	Sig. (2-tailed)	.00	.00	.01	.09	.00	.00	.00	
	N	83	83	83	83	83	83	83	83

Appendix 4. Correlations between Team Trust Scale items

Item number		23.	24.	25.	26.
23.	Pearson Correlation	1.00	.62	.43	.54
	Sig. (2-tailed)		.00	.00	.00
	N	83	83	83	83
24.	Pearson Correlation	.61	1.00	.61	.62
	Sig. (2-tailed)	.00		.00	.00
	N	83	83	83	83
25.	Pearson Correlation	.43	.61	1.00	.56
	Sig. (2-tailed)	.00	.00		.00
	N	83	83	83	83
26.	Pearson Correlation	.54	.62	.56	1.00
	Sig. (2-tailed)	.00	.00	.00	
	N	83	83	83	83

Appendix 5. Correlations between Affective Commitment Scale items

Item number		27.	28.	29.	30.	31.	32.
27.	Pearson Correlation	1.00	.38	.40	.49	.35	.61
	Sig. (2-tailed)		.00	.00	.00	.00	.00
	N	83	83	83	83	83	83
28.	Pearson Correlation	.38	1.00	.26	.23	.33	.41
	Sig. (2-tailed)	.00		.02	.03	.00	.00
	N	83	83	83	83	83	83
29.	Pearson Correlation	.40	.26	1.00	.56	.12	.22
	Sig. (2-tailed)	.00	.02		.00	.27	.04
	N	83	83	83	83	83	83
30.	Pearson Correlation	.49	.23	.56	1.00	.31	.39
	Sig. (2-tailed)	.00	.03	.00		.01	.00
	N	83	83	83	83	83	83
31.	Pearson Correlation	.35	.33	.12	.31	1.00	.62
	Sig. (2-tailed)	.00	.00	.27	.01		.00
	N	83	83	83	83	83	83
32.	Pearson Correlation	.61	.41	.22	.39	.62	1.00
	Sig. (2-tailed)	.00	.00	.04	.00	.00	
	N	83	83	83	83	83	83

Appendix 6. Correlations between Normative Commitment Scale items

Item number		33.	34.	35.	36.	37.	38.
33.	Pearson Correlation	1.00	.37	.36	.45	.47	.35
	Sig. (2-tailed)		.00	.00	.00	.00	.00
	N	83	83	83	83	83	83
34.	Pearson Correlation	.37	1.00	.56	.41	.60	.46
	Sig. (2-tailed)	.00		.00	.00	.00	.00
	N	83	83	83	83	83	83
35.	Pearson Correlation	.36	.56	1.00	.33	.75	.68
	Sig. (2-tailed)	.00	.00		.00	.00	.00
	N	83	83	83	83	83	83
36.	Pearson Correlation	.45	.41	.33	1.00	.45	.47
	Sig. (2-tailed)	.00	.00	.00		.00	.00
	N	83	83	83	83	83	83
37.	Pearson Correlation	.47	.60	.75	.45	1.00	.70
	Sig. (2-tailed)	.00	.00	.00	.00		.00
	N	83	83	83	83	83	83
38.	Pearson Correlation	.35	.46	.68	.47	.70	1.00
	Sig. (2-tailed)	.00	.00	.00	.00	.00	
	N	83	83	83	83	83	83

Appendix 7. Correlations between Continuance Commitment Scale items

Item number		39.	40.	41.	42.	43.	44.	45.	46.
39.	Pearson Correlation	1.00	.07	.39	.30	.008	.36	.43	.07
	Sig. (2-tailed)		.52	.00	.01	.94	.00	.00	.51
	N	83	83	83	83	83	83	83	83
40.	Pearson Correlation	.07	1.00	.13	.11	.03	.00	.11	.15
	Sig. (2-tailed)	.52		.23	.33	.76	.97	.31	.19
	N	83	83	83	83	83	83	83	83
41.	Pearson Correlation	.39	.13	1.00	.15	.06	.22	.23	.04
	Sig. (2-tailed)	.00	.23		.17	.62	.04	.03	.70
	N	83	83	83	83	83	83	83	83
42.	Pearson Correlation	.30	.11	.15	1.00	.13	.41	.34	.03
	Sig. (2-tailed)	.01	.33	.17		.24	.00	.00	.80
	N	83	83	83	83	83	83	83	83
43.	Pearson Correlation	.01	.03	.06	.13	1.00	.03	-.07	-.04
	Sig. (2-tailed)	.94	.76	.62	.24		.78	.52	.73
	N	83	83	83	83	83	83	83	83
44.	Pearson Correlation	.36	.00	.22	.41	.03	1.00	.22	.08
	Sig. (2-tailed)	.00	.97	.04	.00	.78		.04	.48
	N	83	83	83	83	83	83	83	83
45.	Pearson Correlation	.43	.11	.23	.34	-.07	.22	1.00	.07
	Sig. (2-tailed)	.00	.31	.03	.00	.52	.04		.51
	N	83	83	83	83	83	83	83	83
46.	Pearson Correlation	.07	.15	.04	.03	-.04	.08	.07	1.00

	Sig. (2-tailed)	.51	.19	.70	.80	.73	.48	.51	
	N	83	83	83	83	83	83	83	83

Appendix 8. Correlations between Personal Efficacy Scale items

Item number		47.	48.	49.	50.	51.	52.	53.	54.	55.	56.
47.	Pearson Correlation	1.00	.01	.20	.29	.32	.35	.46	.33	.54	.32
	Sig. (2-tailed)		.90	.07	.01	.00	.00	.00	.00	.00	.00
	N	83	83	83	83	83	83	83	83	83	83
48.	Pearson Correlation	.01	1.00	.33	.18	.42	.30	.12	.11	.03	.04
	Sig. (2-tailed)	.90		.00	.11	.00	.01	.28	.32	.76	.74
	N	83	83	83	83	83	83	83	83	83	83
49.	Pearson Correlation	.20	.33	1.00	.46	.38	.30	.24	.45	.15	.14
	Sig. (2-tailed)	.07	.00		.00	.00	.01	.03	.00	.17	.20
	N	83	83	83	83	83	83	83	83	83	83
50.	Pearson Correlation	.29	.18	.46	1.00	.41	.28	.46	.40	.33	.28
	Sig. (2-tailed)	.01	.11	.00		.00	.01	.00	.00	.00	.01
	N	83	83	83	83	83	83	83	83	83	83
51.	Pearson Correlation	.32	.42	.38	.41	1.00	.18	.36	.33	.32	.16
	Sig. (2-tailed)	.00	.00	.00	.00		.11	.00	.00	.00	.15
	N	83	83	83	83	83	83	83	83	83	83
52.	Pearson Correlation	.35	.30	.30	.28	.18	1.00	.39	.44	.25	.27
	Sig. (2-tailed)	.00	.01	.01	.01	.11		.00	.00	.02	.01
	N	83	83	83	83	83	83	83	83	83	83
53.	Pearson Correlation	.46	.12	.24	.46	.36	.39	1.00	.41	.63	.32
	Sig. (2-tailed)	.00	.28	.03	.00	.00	.00		.00	.00	.00
	N	83	83	83	83	83	83	83	83	83	83
54.	Pearson Correlation	.33	.11	.45	.40	.33	.44	.41	1.00	.28	.29

	Sig. (2-tailed)	.00	.32	.00	.00	.00	.00	.00		.01	.01
	N	83	83	83	83	83	83	83	83	83	83
55.	Pearson Correlation	.54	.03	.15	.33	.32	.25	.63	.28	1	.27
	Sig. (2-tailed)	.00	.76	.17	.00	.00	.02	.00	.01		.01
	N	83	83	83	83	83	83	83	83	83	83
56.	Pearson Correlation	.32	.04	.14	.28	.16	.27	.32	.29	.27	1.00
	Sig. (2-tailed)	.00	.74	.20	.01	.15	.01	.00	.01	.01	
	N	83	83	83	83	83	83	83	83	83	83

Appendix 9. Correlations between Collective Efficacy Scale items

Item number		57.	58.	59.	60.	61.	62.	63.
57.	Pearson Correlation	1.00	.47	.31	.57	.24	.39	.37
	Sig. (2-tailed)		.00	.01	.00	.03	.00	.00
	N	83	83	83	83	83	83	83
58.	Pearson Correlation	.47	1.00	.41	.34	.24	.40	.30
	Sig. (2-tailed)	.00		.00	.00	.03	.00	.01
	N	83	83	83	83	83	83	83
59.	Pearson Correlation	.31	.41	1.00	.36	.27	.46	.23
	Sig. (2-tailed)	.01	.00		.00	.01	.00	.04
	N	83	83	83	83	83	83	83
60.	Pearson Correlation	.57	.34	.36	1.00	.32	.43	.54
	Sig. (2-tailed)	.00	.00	.00		.00	.00	.00
	N	83	83	83	83	83	83	83
61.	Pearson Correlation	.24	.24	.27	.32	1.00	.46	.65
	Sig. (2-tailed)	.03	.03	.01	.00		.00	.00
	N	83	83	83	83	83	83	83
62.	Pearson Correlation	.39	.40	.46	.43	.46	1.00	.53
	Sig. (2-tailed)	.00	.00	.00	.00	.00		.00
	N	83	83	83	83	83	83	83
63.	Pearson Correlation	.37	.30	.23	.54	.65	.53	1.00
	Sig. (2-tailed)	.00	.01	.04	.00	.00	.00	
	N	83	83	83	83	83	83	83

Appendix 10. Correlations between Group Success-Failure Scale items

Item number		64.	65.	66.	67.
64.	Pearson Correlation	1.00	.61	.24	.19
	Sig. (2-tailed)		.00	.03	.08
	N	83	83	83	83
65.	Pearson Correlation	.61	1.00	.18	.02
	Sig. (2-tailed)	.00		.10	.86
	N	83	83	83	83
66.	Pearson Correlation	.24	.18	1.00	.24
	Sig. (2-tailed)	.03	.10		.03
	N	83	83	83	83
67.	Pearson Correlation	.19	.02	.24	1.00
	Sig. (2-tailed)	.08	.86	.03	
	N	83	83	83	83

Appendix 11. Correlations between Sum Scales

Sum Scale		Team Effecti-veness	Team Trust	Affective Commit-ment	Normative Commit-ment	Conti-nuance Commit-ment	Personal Efficacy	Collec-tive Efficacy	Group Success-Failure
Team Effective-ness	Pearson Correlation	1	.71	.58	.32	.16	.25	.46	.53
	Sig. (2-tailed)		.00	.00	.00	.15	.02	.00	.00
	N	83	83	83	83	83	83	83	83
Team Trust	Pearson Correlation	.71	1	.61	.38	.11	.19	.42	.43
	Sig. (2-tailed)	.00		.00	.00	.33	.09	.00	.00
	N	83	83	83	83	83	83	83	83
Affective Commit-ment	Pearson Correlation	.58	.61	1	.57	.24	.18	.35	.50
	Sig. (2-tailed)	.00	.00		.00	.03	.10	.00	.00
	N	83	83	83	83	83	83	83	83
Normati-ve Commit-ment	Pearson Correlation	.32	.38	.57	1	.55	.19	.12	.25
	Sig. (2-tailed)	.00	.00	.00		.00	.09	.26	.02
	N	83	83	83	83	83	83	83	83
Continuan-ce Commit-ment	Pearson Correlation	.16	.11	.24	.55	1	.17	.06	.12
	Sig. (2-tailed)	.15	.33	.03	.00		.12	.56	.28
	N	83	83	83	83	83	83	83	83
Self-efficacy	Pearson Correlation	.25	.19	.18	.19	.17	1	.31	.33
	Sig. (2-tailed)	.02	.09	.10	.09	.12		.01	.00
	N	83	83	83	83	83	83	83	83
Collecti-ve - efficacy	Pearson Correlation	.46	.42	.35	.12	.06	.31	1	.69
	Sig. (2-tailed)	.00	.00	.00	.26	.56	.01		.00
	N	83	83	83	83	83	83	83	83
Perceived Goup Success-Failure	Pearson Correlation	.53	.43	.50	.25	.12	.33	.69	1
	Sig. (2-tailed)	.00	.00	.00	.02	.28	.00	.00	
	N	83	83	83	83	83	83	83	83