SOCIAL AND DISCOURSIVE DYNAMICS IN THE EXPERIMENTS OF MEANINGLESS SITUATION

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1 INTRODUCTION

Understanding interaction between individuals within groups in uncertain situations is essential for realization of a learning organization in a rapidly changing environment. On theoretical level, this is important for conceptualizing the extension of individual agency into collective transformation actions, emphasized in recent literature on transformative agency (Sannino, 2015b). On practical level, this phenomenon can be utilized in Change Laboratory – a research-based interventionist approach, which aims at generating new knowledge and new activity in organizations facing complex reality (Engeström, 1987).

The objective of this study is to investigate how previous social interaction and characteristics of groups drive towards social dynamics and discourse among group participants when placed into a meaningless situation. I study how these forces intermingle to result in the decision to break out of this meaningless situation.

Vygotsky's principle of double stimulation creates a framework to investigate this phenomenon (Sannino 2016; Sannino 2015a). The principle of double stimulation helps individuals to transform their circumstances through conflict of motives stemming from a problematic situation - first stimulus, and subsequent usage of external artefacts - second stimulus (Sannino & Engeström, 2017; Sannino 2016; Sannino 2015a).

Meaningless situations are created in double stimulation experiments run on groups of individuals in University of Helsinki during 2012-2013. This study is within the framework of "Emergence of Agency" project of Centre for Research on Activity, Development and Learning, CRADLE.

According to the experimental setting groups of individuals were escorted into a room and left on their own without instructions. If they didn’t break out and didn’t leave the room the experimenter interrupted the experiment after 30 minutes. In group experiments, the groups were divided into 4 categories based on nationality and whether they had some pre-experiment connections: mixed nationalities-shared activity; mixed nationalities-arbitrary groups; Finnish nationalities - shared activity; Finnish nationalities - arbitrary group.
In this study I investigate double stimulation experiments run on Finnish nationality - shared activity groups. It is important to trace the discourse and social reasons behind transformation and breaking out of meaningless situation in these groups. In particular, I analyze whether pre-experimental social network connections between participants, group cohesiveness, and pre-experimental affiliation play a role in:1) discourse they lead; 2) group dynamics stages they complete; and 3) break out of meaningless situation as a result of combined effects from group dynamics and type of discourse.

As a result of the experiments of ‘meaningless situation’, 3 out of 7 groups were successful in breaking out. Groups that left the experiments are co-workers with strong pre-experimental affiliation. On the other hand, groups that did not leave the experiments are students who attended the same courses. Pre-experimental affiliation, the extent to which they knew each other, and social dynamics stages already completed played a key role in the outcomes of the experiment.

Participants of groups that left the experiments were strongly affiliated. They met each other frequently and usually had neighboring offices. Furthermore, they possessed personal information about each other, formed a highly cohesive group, and undergone extensive group dynamics before the experiments. Therefore, the participants of these groups were set in a more meaningless situation during the experiments compared to students attending the same courses. They have not formed co-construction\(^1\) covering a wide range of topics.

The situation is different for groups of students attending the same course, who eventually did not break out of a meaningless situation in the experiments. Participants of these groups knew each other superficially before the experiments. They continued to get to know each other more closely during the experiments, thus going further through the stage of forming. Most of these groups managed to form co-construction during the experiments.

\(^1\) By co-construction I mean discourse in which most of topics covered can be combined under one major theme.
Another interesting finding of this study is that even though groups of co-workers left the experiments, while groups of students stayed, both types of these groups went through some phases of breaking out of meaningless situation. When compared to groups of co-workers, groups of students attending the same courses experienced more intense initial stages of breaking out of a meaningless situation such as defining meaningless situation and searching a meaning of the situation. On the other hand, groups of co-workers proceeded faster to later stages of breaking out of a meaningless situation – attempting to make sense of a meaningless situation, considering types of actions to be undertaken, and actually breaking out of a meaningless situation.

This study consists of 9 chapters. The Chapter 2 presents the historical background of the origin of experimentation psychology and early experiments of double stimulation. In this section, I describe early studies of group cohesion and group dynamics. In Chapter 3, I elaborate on theoretical framework of my thesis. I outline the major contributions in the formation of contemporary Cultural Historical Activity Theory. In this chapter, I also describe the typology of groups and proceed further to the discussion of theoretical and empirical findings with regard to group dynamics and group cohesion. In Chapter 4, I describe experimental set-up and outline research questions investigated in this study. Data collection process and methods used to investigate data are explained in Chapter 5. In Chapter 6, I conduct comparative analysis of social dynamics accomplished in groups who stayed and groups who left the experiments. Chapter 7 continues previous comparative analysis while concentrating on discourse conducted in groups during the experiments. Chapter 8 unifies the finding of the last two chapters and connects them to breaking out of meaningless situation. In the final chapter, I collect all conclusions drawn from investigating research questions in this study.
2 HISTORICAL BACKGROUND

2.1 Experimental traditions. History of the experiment of meaningless situation

Experimental psychology is a rather young trend in the science of psychology. It is a scientific research area in psychology that conducts experiments, empirical and practical methods, and comparisons. However, it cannot be called an independent science, since it is only a branch of psychology - a system of knowledge, which is learned through synthesized information.

The first experiments in psychology are rooted in the works of Wilhelm Wundt in 1880. The experimental laboratory of Wundt at the University of Leipzig in Germany attracted researchers from other countries, who later set up similar experimental laboratories in their own institutions. Thus, the laboratory of Wilhelm Wundt in Leipzig was the first of its own type in experimental psychology. Wundt worked in that laboratory for over 40 years, training thereby scientists in experimental psychology. He was regarded as a father of experimental psychology.

As described in Lyuk & Wolkova, 2011, the original experiments of double stimulation can be traced back in history to experiments of Kurt Lewin (1890 – 1947) and his student Tamara Dembo (1902-1993). Tamara Dembo initiated the set of anger experiments with the “waiting experiment” in the laboratory. In these experiments, individuals were invited into the experimental room and were left on their own with no instructions. At the same time the experimenter made notes about subjects’ behaviour in the room. After the experiment, the participants stated that they couldn’t concentrate on activities they intended to. During the experiment, one of the participants tried to solve a crossword in the newspaper but felt hindered by the experimenter. As soon as the experimenter left the room he found two words at once. Other subjects tried to read books and couldn’t concentrate while being observed as well. The rest didn’t have any intentions to do anything meaningful and looked through the window for a long time or tried to start a dialog with the experimenter (Lyuk & Wolkova, 2011).
There are substantial differences between original and contemporary “waiting experiments”. These differences are in every aspect of experiment: tools, the number of participants, as well as social and institutional environment. Unlike Kurt Lewin, who utilized special Gezell glass for observing the behavior of individuals in the experiments (Zeygarnik, 1981), modern experimenters utilize modern technological equipment, such as video and audio recorders, microphones, and Dictaphones. Modern experimental premises have a special design of rooms equipped with constructed mirror wall for observation. Another important difference is that Lewin conducted his experiments with individuals, while modern experimenters carry it out on both individuals and groups.

Unlike the classic experiments in psychology the experiments of meaningless situations do not offer meaning to the subjects. The subjects search for meaning by themselves. The control over the experiments is not in the hands of the experimenters, but in the hands of subjects – they are expected to grasp it, but they are not informed about it.

As my research questions are covering the issues of group dynamics and especially such components as group cohesion and social interaction I think it is crucial to go to the historicity of these concepts.

2.2 Group dynamics and group cohesion studies in the past

As outlined in Dion (2000), the history of group dynamics roots in studies of Kurt Lewin (1890 – 1947), who developed the concept of group dynamics. Kurt Lewin founded Group Dynamics Research center in 1944. The work of the research center was oriented towards the phenomenon of group dynamics and its different aspects: group leadership, communication, intergroup relations and others.

In the beginning of the XX century researchers studied the phenomenon of group dynamics based their theories and ideas on personal experience and historical records. There was no necessity for collecting empirical data for providing answers to their questions (Cartwright & Zander, 1968).

Early experiments on group dynamics were useful for developing techniques for the future experiments. Triplett (1861-1931) was the pioneer in conducting experiments in
social psychology. For his experiment he involved 40 children to play a game in which they had to turn a small fishing reel as quickly as possible. According to the experimental outcomes of Tripplet (1898) children working in pairs were quicker compared to other children who worked individually.
3 THEORETICAL FRAMEWORK

3.1 Towards Cultural Historical Activity Theory

3.1.1 Individual Action

The analysis of activity envisions a simultaneous consideration of the three elements: an individual as a driving mechanism, his interrelationship with others, and the substance of cultural values and knowledge (Edwards, 2011). History of understanding of activity went exactly through the concentration on each premise of the three elements named above.

Cultural Historical Activity Theory roots in works of Russian psychologist L. S. Vygotsky (1896-1934) and further studied by his colleagues A.N. Leont’ev (1903-1979), A. R. Luria (1902-1977) and others. Vygotsky (1978) defines the relationship between individuals and society basing on the theories of K. Marx.

According to Vygotsky’s theory (Davydov & Radikhovskii, 1985) the action was presented as a process that allows development of human consciousness through interactions with tools and artefacts and as a result of this process individuals find new meanings for themselves. He initiated the idea that presented human action as a triangle of subject-tool-object. According to this scheme action is performed by the individual (subject) with the help of tools and signs and by this it transforms the object.

Figure 1
According to Shapiro (1996), L.S. Vygotsky had a great interest in identifying methods that studied and explained human activities. He created a great psychological research and methodological tools. In particular, he developed an experimental method for genetic research in psychology and a variety of specific techniques. For checking the some concepts of cultural-historical theory Vygotsky developed the method of double stimulation (Vygotsky, 2005). The idea of mediated action is the foundation of the principle of double stimulation. With the help of the method of double stimulation the process of mediation mechanism was modelled and the mechanism of inserting of signs in the structure of human higher mental functions was traced.

Vygotsky & Sakharov (1998) elaborate the method of double stimulation for studying the process of concept formation. The idea of the method is in the two sets of stimuli: 1. Performs the function of the object towards which the subject directs his action, 2. Performs the function of signs by which these activities are performed. Thus, in their experiments Vigotskiy and Sakharov utilize figures of different colours, forms and sizes as object-stimuli. As for the tool-stimuli they utilize words that were written on the backside of each of these figures. The purpose of the subject is to formulate concepts, gradually discovering its features basing on selection of figures, which in his opinion were the bearers of the concept. Later, it became possible to study how the subject utilized signs to control his thinking process and how the use of the word influences the process of concept formation. This method is extensively reflected as a means for analyzing the development of higher mental functions in general.

**3.1.2 The emergence of Cultural Historical Activity Theory**

Leont’ev (1978, 1981) developed the concept of activity. Rather than concentrating on psychological development of individual within cultural-historical heritage, as it was done in the works of Vygotsky, Leont’ev recognized the importance of object of activity in the process of activity formation (Barab et. al, 2004). In fact, he first introduced the concept of object of activity into the activity theory. According to Leont’ev ultimate goal toward which action is oriented is motive or object of activity. Thus, this term was used by Leont’ev to denote objective orientation of activity. Leont’ev regarded activities to be carried out by individuals through interactions in communities.
Leont’ev (1978, 1981) distinguished between operations, actions and activity, and thus immediate action and larger activity system. Operations are mundane routine actions constituting basic activity, actions require skill and knowledge, and finally activity system where activity is stemmed from motives and goals (Barab et. al, 2004).

The idea of activity as a collective process was further developed by Engeström (1987, 1990, 1999, 2001). The major advancement in activity theory introduced by Yrjö Engeström in comparison to Leont’ev (1978, 1981) is that group/community level activity is structurally modeled, while in Leont’ev’s works activity is a connection between subject and object primarily. Engeström (1987, 1990) extended Vygotsky’s triangle model with social interactions such as 1) rules regulating subject’s actions: 2) community of people sharing common interests: 3) division of labor (Foot, 2001).

Modern developments in Cultural Historical Activity Theory relate to studies in Engeström (1987, 1990, 1999, 2001, 2004, 2006), Sannino (2011, 2015a, 2015b, 2016), Engeström et al. (2014), Sannino & Engeström (2017), Sannino et al. (2016) among others. Contemporary Cultural Historical Activity Theory centralize the community level cultural values and knowledge intertwined with individuals who work on them and change them continually. Activity is regarded as an outcome of mediation between individuals and the system that is realized through reciprocal interaction of internalization and externalization - people internalize everything that they see and perceive, and externalize activity in accordance of values of the society. Reciprocal interaction between individual and the system occurs not only mechanically as by Vygotsky (1978), but also through motive-oriented object of activity (Leont’ev concept, 1978, 1981).

According to Engeström (2001), learning is revealed through interaction between subject and object of work linked by mediating artifacts (Vygotsky triangle) within a context of inter-chained rules and division of labor in a community. Object of work is not only an outcome of Leont’ev type individual activity, but also other important forces within and outside of interactive activity system.

Learning through collective activity is not a finite, but rather a continuous process. In the latest stage of Cultural Historical Activity Theory development, researchers attempted to
conceptualize the networking the interaction of activity system, as noted by Engeström (2001). Graphical reflection of collective object-oriented learning process can be visualized as in the following figure from Engeström 2001, pp. 136

**Figure 2**

Engeström (2001) explains that collective activity system moves the object from its initial stage (Object 1) to re-conceptualized, collectively meaningful object (Object 2), and ultimately to jointly shared object (Object 3). Five principles defined by Engeström (2001) disclose the possibilities for an optimization of activity in changing, customer-oriented organizations. The first principle is in a reflection of object-, goal-orientedness of individual as defined by Leont’ev (1978, 1981). The second principle grounds on multivoicedness of activity system resulted by division of labor, as well as cultural and historical identities. The third principle accentuates the need to understand historical trends in activity development in order to envision future modes of activity. The forth principle mirrors the main ideological points of Marxistic theory, by which the development occurs from bottom to up, and the true revelation ensues from contradictions. Thus, contradictions of new elements with old ones form perspective changes in work activity. For example, introduction of new conceptual tools that are in constant contradiction with the previous ones is a cause of collective reinterpretation of object of work. The fifth principle ensues logically from other four principles and unifies all contradictions and interactions to allow for transformation towards new modes of activity. Expansive learning reflects the five principles described above and signifies not
a learning that is taught through conservative teaching, but information digest and skill building on the way to the zone of proximal development triggered by contradictions in activity.

Engeström (2001) stresses that detection of contradictions and transition to more advanced modes of activity can be alleviated with the aid of questioning, analyzing, modeling, implementing, reflecting and consolidating. Thus, expansive learning is a flexible process of learning formed in organizations that practice an intensified communication with customers. Indeed, transformation into new-type of organizations has been observed during the last few decades.

3.2 Transformations of object-oriented activities through formative interventions in Change Laboratories

Cultural Historical Activity Theory was further developed in the process of implementation of numerous formative interventions through Change Laboratories. Change Laboratory is a formative intervention that enables expansive learning and developing new modes of activity in organizations operating within rapidly changing environment.

As it was discussed by Engeström et. al (1999), organizations underwent rapid transformation from conservative-hierarchical, and market-oriented types to customer negotiated service providers. Market oriented organizations are more flexible than hierarchical ones, and “service negotiators” go even further in terms of flexibility. Unlike purely market-oriented organizations, where learning is haphazard, “service negotiators” should practice an ordered, planned learning. Therefore, expansive learning in and for work implies the work carried over in changing environments and organizations that adjust to reality in continuous planned manner. This is exactly the objective of Change Laboratory.

Interventions in Change Laboratories are usually implemented during 6-12 weekly sessions, each lasting about 2 hours (Sannino & Engeström, 2017). Interventionists start
with complexities and contradiction, and in consequence, while using special Change Laboratory devises develop new activities and approaches to problem solutions.

The model of formative interventions in Change Laboratories can be visualized in the following figure from Engeström et al. (1996):

**Figure 3**

According to Engeström et al. (1996), there are two main dimensions in Change laboratory: 1) horizontal dimension; 2) vertical dimension. Horizontal dimension consists of ‘Mirror’ on one side, ‘Model’ on another, and ‘Ideas, Intermediate Tools’ in the middle. The ‘Mirror’ surface is used to examine problematic situation by means of for example video-recordings, interviews, customer feedback etc. The model is from Cultural Historical Activity Theory and is used to systematically analyze the work activity. Intermediate ideas and tools produced through interaction between ‘Mirror’ and the model are collected in the middle surface.
Vertical dimension represents developments through time. Initially, the present problem is regarded as rooted in the past situation. Past activity is afterwards modeled. In the next step the analysis moves to the current situation, and through investigation of contradictions envisions new solutions towards the zone of proximal development.

The contemporary methodology of formative interventions through Change Laboratories is based on double stimulation and ascending from abstract to concrete as described thoroughly in Sannino & Engeström (2017). I review these two principles in the next two sub-sections.

3.2.1 Double stimulation

A number of double stimulation experiments conducted in the University of Helsinki during recent decade contributed to the understanding of contemporary Cultural Historical Activity Theory. Principle of double stimulation has two main functions as regarded in the literature: 1) examine higher mental functions; 2) a device stimulating action. Early experiments of double stimulation were in line with its first function, while the second function is in the core of formative interventionist approach, such as Change Laboratory. There are two types of stimuli. The first stimulus is the problematic situation, or the task itself as of Vigotsky. The second stimulus is a tool with a help of which the problem is solved. The principle of double stimulation in the context of Cultural Historical Activity Theory is described in Sannino (2015a, 2016).

Vigotskiy (1997) explains the role of double stimulation in the formation of will. The model of Vygotsky’s will formation can also be applied in the wider framework of Cultural Historical Activity Theory. Vigotskiy (1997) differentiates two types of mechanisms in the activity system: Apparatus-1 and Apparatus-2. Apparatus-1 reflects a decision-making process, while Apparatus-2 the process of implementation. Both apparatuses are preceded by ultimate motives that drive the necessity to solve a problematic situation. The interactions between and within these apparatuses are described in detail in Sannino (2015a, 2016) as depicted in Figure 4.
Sannino (2015a, 2016) split Apparatus-1 into 4 phases: 1) conflicts of stimuli; 2) conflicts of auxiliary moves; 3) “real” conflict of stimuli; and 4) closure. Apparatus – 2 denotes the realization of actions designed in Apparatus-1. In the initial stage of Apparatus-1 is conflict of stimuli when placed in a conflicting situation. In the example illustrated by Vygotsky (1997), a person is asked to wait in an empty room. Here, waiting and empty room are in conflict with each other. In Phase 2, the subject reveals conflict of motives. In the previous example, the person may contemplate on the two choices – leave the room or wait longer. In Phase 3, a neutral tool – second stimuli, is involved in
the formation of an auxiliary motive. With an aid of this stimuli a person sorts and orders his behavior. In the waiting example, a watch may be used to form auxiliary motive: “I will leave the room when clock beats 11”. Phase 4 consists of two steps a) “real” conflict of stimuli; step b) closure of connection between stimulus and reaction. In real conflict of stimuli, a connecting mechanism between a situation and action is recalled, while in the next step a closure between stimuli and reaction is decided upon. Apparatus-2 is an automatic consequence of closure and incorporates the implementation of action.

Sannino (2016) outlines the detailed process of breaking out of a meaningless situation in groups within waiting experiments, while employing the framework described above. This framework is also in the core-stone of this study. One should also recognize thought that double stimulation is not merely a method to comprehend the process of activity formation, it is also a principle driving toward volitional action as explained by Sannino (2015a, 2016). The question is whether volitional action in uncertain situations emerge also in groups, which is closely related to questions addressed in this study.

3.2.2 Ascending from abstract to concrete

The concept ascending from abstract to concrete is in foundation of dialectic thinking (Davydov, 2008), which is in the essence of expansive learning (Engeström, 1987). According to Engeström, (1987) learning is transmitted from individual to collective system gradually, that is from abstract to concrete. As a result of expansive learning, new patterns of activities are developed. Expansive learning cycle is explained in Engeström et. al (2014). The idea can be visualized in the following figure:
As described by Engeström et al. (2014): individuals initially question current situation and mode of activity; in the next step, they analyze the situation, and try to explain it for example through historical analysis or through identification of inner systemic relations; then, they model newly found relationships; examine and operationalize the model; practically implement the model; reflect on the evaluation of the new processes; and finally, consolidate the outcomes to establish the new form of practice. Ultimately, the new form of activity is emerged and shared within the collective system. The expansive learning cycle is a continuous process in rapidly changing environment to be established through Change Laboratory.

Ascending from abstract to concrete and double stimulation principles are interconnected. As noted in Sannino & Engeström (2017), conflicts of motives and second stimuli construction in double stimulation are pre-conditions for ascending from abstract to concrete. Sannino & Engeström (2017) discuss three real-life examples and show how initial contradictions are transmitted to conflict of motives, and first and second stimuli before establishing new concept emanated from the zone of proximal development.
3.2.3 Examples of Change Laboratory

Since the first pilot projects (Engeström et al., 1996) carried out more than two decades, Change Laboratory was implemented in numerous countries, companies, communities, and educational organizations (Sannino & Engeström, 2017). Sannino et. al (2016) bring three examples of successful implementation of Change Laboratories in two schools (one in Brazil, and another in Helsinki), and academic library (of Helsinki University). They conclude that expansive learning in formative interventions is reached though collective design implemented over lengthy period of time.

Sannino & Engeström (2017) describe another three examples of interventions through Change Laboratories carried out in Central Surgery Unit of University Hospital of Oulu, municipal home-care service for elderly in Helsinki, and library of the University of Helsinki. For each case, the researchers map initial contradictions to conflict of motives, further to first and second stimuli reflecting double stimulation, continuing to zone of proximal development, and finally resulting in the new concept.

Toiviainen & Engeström (2009) analyze the process of expansive learning in a new type of business – wealth management, after introduction of a novel tool – investment plan. The authors show that the path towards expansive learning can hardly be seen as linear, as there are usually tensions and contradictions with realities in work. Nevertheless, they demonstrate how innovative and ordered plans of learning could drive towards new modes of activity that harmonize needs of customer and needs with ambitions of an organization.

3.3 Typology of groups

Individuals live in a society and belong to different groups. Unconsciously one may belong to different groups at the same time. A group is a collection of two or more people who have the same goals and have similar way of behaviour and thinking. Groups differ in size and category, they may have insiders and outsiders, and they may have norms and rules as a clear structure.
Forsyth (2014) defines the group as a gathering of individuals who share social relations with one another. He states that all people belong to a number of groups. Families, friends, workmates, plane crews, study groups or even strangers standing in the line are participants or specific types of groups.

There are a huge number of groups in our society. Groups can be analyzed from different aspects and categories. But there are two main categories of groups. Primarily, groups were classified into 2 main categories by American sociologist Charles Horton Cooley (1909). He identifies two main categories of groups: primary and secondary.

According to Cooley (1909), primary group is a small gathering of people who spend much time together. They have active face-to-face verbal communication regularly. Even if the members of this group are not together at some moment, they still feel their belonging to the group. Individuals in primary groups can influence opinion, views, and thoughts of each other. The relationship in primary groups is long-term and filled with emotions, such as: love, loyalty, support, concern about each other. Each of us may involuntarily become part of a primary group, such as family.

Unlike primary groups secondary groups as defined by Cooley (1909), are larger in size and inquire impersonal relationship. The relationship among participants is not regularly face-to-face; each of the participants is caring of his own safeguard in the group. Their formal relationship occurs only for reaching specific joint goal.

Forsyth (2014) classifies secondary groups further into 3 divisions: social, collectives, categories.

- Forsyth (2014) defines social groups as a gathering of people who meet each other from time to time for some joint purpose. For example, workmates, cabin crews, sport teams are social groups.

- Forsyth (2014) further states that collectives are gathering of people for some specific activity for a limited amount of time. Usually, members of collective share joint interest or activity but have no loyalty to the group. As soon as the involvement in the activity is finished the group evaporates. Participants don’t
feel strong stickiness and unity with other group members. Each of the participants in this group tries to reach his goal on his own. A group of people staying in the line, study groups, crews are examples of collectives.

- By category of individuals Forsyth (2014) means a group of people who share some specific feature with one another in common. For example all doctors are one category of people who have the same occupation, all harvardians are people who are related to Harvard University.

### 3.4 Group dynamics

Group dynamics originates from interaction between group members (Toseland & Rivas, 2005). According to Toseland & Rivas (2005) important dimensions of group dynamics are communication and interaction patterns, cohesion, social integration, and group culture.

There have been many research studies done about group dynamics. Tuckman (1965) defines five stages of group dynamics: 1) Forming; 2) Storming; 3) Norming; 4) Performing; and 5) Adjourning. He believes that it is unavoidably important for every group to take these steps for growing and reaching their goals.

Here is a short description of stages as noted in Tuckman (1965):

1. Forming is the first stage of group dynamics. This is the stage where individuals meet each other for the first time. During this stage individuals share personal background and previous experiences information. They build basic relationship with one another.

2. After getting formed the group members may run into first conflicts in the group at this stage. They start to voice their disagreement with other participants. The individuals don’t feel themselves as a group yet. They still feel themselves as separate personalities. The dominant roles are being observed during these stages.

3. Norming is a stage when individuals start feeling that they all are an entity and that together they may be successful in achieving group goals.
4. At the stage of performing a group start collaborative work together, they make decisions and take actions. They perform the work in cooperation with each other.

5. During the final adjourning stage individuals disband because they have completed their group goals. They recognize contributions of each other and prepare for separation.

3.5 Group cohesion

In 1940s Kurt Lewin was the one who laid foundation to the term “group cohesion”. In his studies he insisted that cohesiveness and readiness to stick together is the feature that belonged to the group. According to these studies he developed the field theory and topological psychology.

Group cohesion stems from forces that unite group members (Carron & Hausenblas, 1998; Festinger et. al, 1950). It incorporates such concepts as task and social cohesion, vertical and horizontal cohesion, personal and social attraction, belongingness, and morale (Bollen & Hoyle, 1990).

Braaten (1991) synthesize literature on group cohesion and developed a model based on number of factors such as bonding between group members, giving support, ability to listening, and retrospective feedback, as well as process performance and goal attainment. Group cohesion is reinforced furthermore by satisfaction with security, recognition, prestige, and benefits that group membership can provide (Cartwright & Zander, 1968).

Researchers have also studied the relationship between group cohesion and group performance. Zaccaro & Lowe (1988) investigate two dimensions of group cohesion – task cohesion and interpersonal cohesion in their possible linkage to group performance. The authors conclude that unlike interpersonal cohesion, task cohesion is related to group performance. Zaccaro & McCoy (1988) claim that both types of cohesion are important for tasks that require interpersonal interaction.

Picazo et. al (2014) state that task cohesion is more important than inter-personal cohesion during the initial stage of team projects. Bernthal & Isko (1993) analyze the relationship
between task cohesion with social-emotional cohesion in the context of group-thinking. They find that lowest perception of group-thinking is associated with high task cohesion and low social-emotional cohesion.

The impact of group cohesion on decision quality in groups is studied by Mullen et al. (1994). They find no overall significant relationship between group cohesion and decision quality. The authors however claim that cohesiveness impacts the quality of decisions more adversely when there is a high level of interpersonal attraction and low degree of group pride.

Campbel (1958) introduced the term “entitativity” to determine the extent to which a group is a group. Lickel et. al (2000) investigate entitativity among different types of groups. Their study is based on a survey conducted on students, participating in the university course. They conclude that entitativity level is highest among the group of “family members” – 8,16 points and lowest among the group of “people in the line in the bank”-2,4 points. (Figure 6)

**Figure 6**  **Entitativity categories as of Licekelet. al (2000)**

From this figure we can also see that for example, co-workers are rated higher in entitativity than workers at factories or students enrolled in a class.
3.6 Object of activity as the foundation of group cohesion

Group cohesion and object of activity are important in determining dynamics and processes in collective activity system. In this section we analyze the concept of object from activity-theoretical perspective.

The object of activity is in the foundation of activity. As noted in Miettinen (2005), the concept of object in relation to activity was first introduced by Leont’ev (1978). According to Leont’ev (1978) object of activity and motivation are closely related (Miettinen, 2005; Kaptelinin 2005). In fact, object ‘is a true motive’ of activity. Therefore, he refers to activity as object-oriented. As discussed in Miettinen & Paavola (2018), Leont’ev (1978,) reflectes on dual nature of object of activity: on one side it something that is real, and on another side, it is something that is imagined and projected. Leont’ev (1978) states that the only thing that distinguish one activity from another is its object. Thus, in Leont’ev’s works the term of object of activity primarily denotes goal-oriented actions in collective activity, given the distribution of labor (Miettinen & Paavola, 2018).

Engeström (1987) further develops ideas of Leont’ev (1978, 1981), when designing the model of expansive learning in work activities. In this way, phycological concepts are expanded to work activities in society (Miettinen & Paavola, 2018; Miettinen, 2005). Object of activity in developmental work research determines the essence of work and has double sides. Firstly, it is motive-oriented. Secondly, reflection on historically established work practices reveals inter- and intra-contradictions in object and motives that necessitate a search for new solutions and movement towards the ‘zone of proximal development’. This process ultimately shapes the new model of activity (Engeström 2000; Engeström 1987, Miettinen & Paavola, 2018). The first side is in line with Leont’ev’s (1978, 1981) ideas, while the second is a novel re-conceptualization and re-construction of object in developmental work research. According to the second aspect, object is never in a static position, it always moves and reshapes while adjusting to changing environment (Engeström 1995).

As noted by Miettinen (2005), the object of activity is a complex concept that grasps various entities intertwined through various activities, political and socio-economical
relationships. He further states that such relationships are reflected in division of labor, commodity and labor market interactions. Object formation is not a one-step process but goes to its ultimate shape through temporal trajectories of development.

To recapitulate, object of activity unites individuals towards common motive-oriented actions in collective systems. It is a complex and continuous process of adjusting to realities, not devoid of historical impacts. Therefore, group cohesion is not feasible without object of activity. In the context of this study, the main background phenomena to be investigated is the interconnection between historical social relations, and group cohesion on one side and further group dynamics in the path of breaking out of a meaningless situation, which is possibly mediated by object of activity.
4 EXPERIMENTAL SET-UP AND RESEARCH QUESTIONS

First experiments of meaningless situations at the University of Helsinki were conducted during 2008-2009 (Laitinen, 2012). Initially, experiments were run on individuals, and later on groups of individuals.

In group experiments, the groups were divided into 4 categories based on nationality and whether the participants had some pre-experiment connections:

(1) Mixed nationalities-shared activity;

(2) Mixed nationalities-arbitrary groups;

(3) Finnish nationalities - shared activity;

(4) Finnish nationalities - arbitrary group.

Each group consisted of 2 to 4 participants.

The distribution and types of groups in the experiments can be better visualized in Figure 7.

Figure 7
On the run of experiments of double stimulation experiments on Finnish groups with shared activities, it became evident that some groups were more successful in breaking out of meaningless situations than the others.

Why some groups were more likely to break out of problematic situation even though they were assigned to one category-quadrant: Finnish group with shared activity?

Thus, there should be additional variations in groups from Quadrant-IV not captured by their belonging to same nationality and pre-experiment acquaintance, or there must be variation in the degree of their pre-experiment connections.

On the one hand, one might think that the fact that the participants had any pre-experiment connection helped them to overcome some initial barriers of communication. On the other hand, the less the experiment groups were a "group-team" prior to the experiment, the more likely there would have been some room for communication maneuvers. In addition, prior to experiment groups are likely to have some shared views and values that might have hindered them to see the light in perplexing situations. On the contrary, people from different networks might solve a meaningless situation problem more successfully if they were to enjoy the communication of contradictory views that they convey. Those are possible social reasons for the success of groups in breaking out of a meaningless situation.

**Research question 1:**

*What are the key differences in the social dynamics taking place in the groups who left and in the groups who stayed?*

Nationalities of participants and their pre-experimental connection might be related to how they share some common views and values, which could affect the way of how they conduct the dialogs, and most importantly, the way how they experience the speeches of others. The importance of experiencing in the talk within the context of Change Laboratory was articulated by Sannino (2008). Therefore, it will be interesting to explore the differences of discourse in groups that broke out of a meaningless situation with those that did not manage to do it.
Research question 2:

*What are the key differences in the discourse taking place in the groups who left and in the groups who stayed?*

It would be interesting to investigate the relation between the pre-experimental connections and nationality of participants on the one hand and the discourse they convey in the process of transformation and breaking out of a meaningless situation.

Research Question-3:

*How do the differences in discourse and social dynamics relate to breaking out of meaningless situation?*

The findings for the research question 1 and 2 will be fundamental for investigating the differences in breaking out of meaningless situation.
### 5 DATA COLLECTION AND METHODOLOGY

#### 5.1 Process of data collection

The analyses of my thesis are based on the results of the experiments of the Finnish Shared Activity groups (Table 1). Seven Finish groups were constructed according to their nationalities and activities that they shared before the experiments.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Shared Activity</th>
<th>Number of part.</th>
<th>Males, Females</th>
<th>Occupation</th>
<th>End of the experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 1</td>
<td>Regular lecture course</td>
<td>3</td>
<td>F Student</td>
<td></td>
<td>Interrupted by the experimenter after 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 2</td>
<td>Regular lecture course</td>
<td>2</td>
<td>F Student</td>
<td></td>
<td>Interrupted by the experimenter after 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 3</td>
<td>Research team, close workmates</td>
<td>4</td>
<td>M Professional</td>
<td></td>
<td>28:14 N left the room</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 4</td>
<td>Regular lecture course</td>
<td>3</td>
<td>F Student</td>
<td></td>
<td>Interrupted by the experimenter after 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 5</td>
<td>Intensive summer course</td>
<td>4</td>
<td>F Professional/Student</td>
<td></td>
<td>Interrupted by the experimenter after 30 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M Professional/Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M Professional/Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 6</td>
<td>Shared office, overlapping projects</td>
<td>2</td>
<td>F Professional</td>
<td></td>
<td>Left at 27:52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Professional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS 7</td>
<td>Shared office, same project</td>
<td>3</td>
<td>F Professional</td>
<td></td>
<td>F2 left the room to get some coffee after 20:16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Student</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F Professional</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1
Participants of the experiments were mainly recruited through e-mails, intermediary and direct contacting. There was no any specific information on the time reference given to the participants, but if asked it was told to them that the experiment may take about one hour. Participants were mainly students and professionals. Each group consisted of 2-4 participants. 75% of participants in these groups were females and 25% were males. Participants within each group shared some activity before the experiments: attended the same courses, shared the office, belonged to the same research team or projects, etc.

5.2 Experimental set-up

Participants of the experiment were conducted to the experimental room by the researcher. The room had a special design that has a mirror wall on the one side. It allowed researchers to observe participants from the neighboring room (Picture 1, 2).

Picture 1
In the opposite of the mirror wall there was a white writing board with a couple of colored markers on it. Below the writing board there was a row of desks and a pile of chairs in the end of the row on the one end and a chest of drawers on the other end (Picture 3).

The room had also a couple of tables, chairs and a clock on the wall. By the back wall of the room there was a desk with the computer projector covered with the cloth. On the right corner of the back wall there was a long narrow window with a black rock wall out of it. The wall that had the entrance door into the room was made out of glass tiles through which it was possible to see the shapes of people moving in the corridor (Picture 4).
The participants were allowed to take their belongings into the room. After a group of participants entered the room the researcher told them that the experiment would start soon and left the participants on their own. Participants' activities and speech were
recorded by hidden cameras and microphones. There were two cameras recording the process of the experiment: one the left and on the right corners of the room. Apart of them, there were already other cameras in the room for the security reasons. The red light indicating that the camera was recording was concealed. According to the experimental design four desks were forming one big table in the center of the room with a couple of chairs around it.

After the participants were left in the room it was agreed among the research group that as soon as one of the participants went to the door and touched the door handle the researcher assistant that could observe the experimental process from the mirror wall, would run into the experimental room and inform the participants that the experiment was over. The touch of the door handle was decided to be the indication, signifying that the participant was intending to leave the room and consequently to interrupt the experiment. In cases if nobody of participants was intending to leave the room in the frame of 30 minutes, the researcher assistant entered the room and interrupted the experiment. After the experimental part was over the participants were invited into the special room for the interview.

**Picture 5**
The interview room was next to the room where researchers could observe and record the experimental process. The room was equipped for recording the process of the interview (Picture 5).

Before starting the process of interview the participants were asked to sign a special consent form for their agreement in utilizing data in the research. After it the researcher asked them through the special list of questions that was followed every time with each group of participants (Sannino, 2016; Sannino & Laitinen, 2015).

1. How long do you think you waited?
2. What did you do before you left? / What did you do before I came into the room?
3. What made you (decide to) leave? / Did you think about leaving?
4. What were you going to do after you left? / While you were waiting, did you think about what you would do after the experiment?
5. While we are watching the video, could you tell me what you were thinking?
6. Did you set yourself a time limit beyond which you would leave?
7. Why did you agree to participate in the experiment?
8. What is the relationship between you and the other participants in the experiment?
9. Can you associate this experience with something that has happened to you before?

The first four questions of the list were oriented towards discovering the general ideas of participants about the experimental length and the reasons that made them stay or leave. Questions from 4-9 were based on their ideas via stimulated recall data. The participants were shown the experiment in which they participated a bit earlier and were asked to recall the reasons behind their actions in the experiment.
Therefore, according to the experimental design there were several types of data collected for the analysis:

- Virtual interaction data – The participants were recruited in the experiment by emails from the researcher assistant. It was not given any reference of time about the experiment, but if asked they were told that the experiment may take about one hour.

- Audio and video recordings – all the experiments were video-recorded by two cameras: one inside the experiment room and another in the adjacent room where the researchers could observe the run of the experiment. As the quality of the video could be rather problematic sometimes it was decided to hide microphones in the room. All the transcripts were done according to these recordings.

- Transcripts – translated from Finnish into English, comprised of detailed speech of the participants in the room during experiment and interview. In order to have a full picture of the flow of events in the experiment room it was also very crucial to include annotations of nonverbal behavior of the participants, such as: body positions, manipulating certain objects, gazes, and pauses.

- Interview – After participating in the experiment participants were invited for the interview. There was a special list of questions, which they had to answer in a certain order. Interviews were audio and video recorded. The length of the interview depends on the time of participants in the experimental room. Usually interviews were about 30-40 minutes. For the purpose of the analysis interview transcripts were translated from Finnish into English.

- Stimulated recall commentaries – During the process of the interview participants were shown the video of the experiment in fast-forward mode. Thus, they could elaborate on their thoughts and ideas of their behavior or discourse in the room. This source of data is drastically important for having a complete picture of what was going on in the room.
My research data consisted of transcripts of 7 cases of Finnish Shared activity groups. The dataset for each group consisted of transcripts of experiments and transcripts of interviews that were conducted right after the experiment. The symbols used for the transcripts are the following:

--- - the speech of the participant is unclear

# - participant interrupts the speech of another speaking participant

## - overlapping speech

¤ - pauses

¤10sec. - long pauses are indicated by the amount of time

(?) – not sure if heard correctly

The participants in the transcripts are indicated with the letters

M1, M2- that means Male1, Male2

N1, N2- Female1, Female2

Each speaking turn of the participants is numbered.

5.3 Methods of data analysis. Thematic analysis.

In order to identify and investigate patterns in data that can be used to investigate research questions, and transform qualitative data into interpretable quantitative representation, I used thematic analysis described thoroughly in Boyatzis (1998).

Braun and Clarke (2006) advocate that the main idea of the method of thematic analysis is identifying patterns in the data. These patterns maybe utilized for conducting data analysis. The patterned themes can be derived in accordance with the research questions.
At the initial stage of my analysis, I re-read transcripts several times in order to familiarize myself with the data. At this stage, I made notes, and generated ideas that I could utilize at later stages of research. Original transcripts of video-recordings from experiments and follow-up interviews were prepared by EMA\textsuperscript{2} project participants in Finnish. These transcripts were further translated into English.

After getting familiarized with the data I watched the videos of the experiment of each group and marked the pauses and usage of artefacts in the transcripts. I made notes about these observations in the transcripts of discourse. In addition, I observed the gazes and movements of each participant, such as for example, looking at the cock on the wall, at the door, or throwing glances at the cameras, and recorded them in the transcripts. These markings were very crucial for answering the research questions of this study. Also, at this stage I counted the number of speaking turns for each participant during the experiment.

After several rounds of reading the transcribed data, I identified patterns in the transcripts of the experiments. In particular, I traced the start of discussion theme, marked the speaking turn and followed it throughout the whole discussion, until marking its final speaking turn.

The tracing of the topics was done as in the following example (Table 2).

\textbf{Table 2}

<table>
<thead>
<tr>
<th>Rugs and materials for its making (13-24)</th>
<th>13. N4: Spent with some rug woofs, and a bit of gin tonic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14. N4: Really, the rug thing! It fits nicely in our new room---Really!</td>
</tr>
<tr>
<td></td>
<td>15. N2: Do your cleaners mind?</td>
</tr>
<tr>
<td></td>
<td>16. N4: Well, let's put it this way ---(straightens her arms and fingers)</td>
</tr>
<tr>
<td></td>
<td>17. N3: Yes, sure, but that's like…</td>
</tr>
<tr>
<td></td>
<td>18. N4: It lasts a long time</td>
</tr>
<tr>
<td></td>
<td>19. N3: It lasts a long time as I always walk over that rug…</td>
</tr>
<tr>
<td></td>
<td>20. N4: Is it, the one you're doing, I mean, is it cotton?</td>
</tr>
</tbody>
</table>

\textsuperscript{2}“The Emergence of Agency: Foundations for Project Educational Change from Below” (2012-2017), Academy Research Fellowship provided by Academy of Finland
21. N2: It must be, I mean, like stretch fabric (shows with her hands) Like, t-shirt material is optimal for it. Like, I have bought certain stretch woof for it, it costs about six euros a kilo, or then made it myself, like…

22. N4: We probably have piles of old t-shirts…

23. N2: #Yeah, right, don't throw them out, they're great for that. I have used all of our-, and then I keep critically eyeing my boyfriend's clothes, like, not in a great shape, but no, but I can't…So I need to get some from the recycling center---

24. N4: Yes, yes. And then what I have is old jeans, at times quite a lot, too. Then we have old shirts, which is, well, that's where my ecology goes, like I can't throw away good men's shirts that only have a damaged collar or this here (shows the cuff) --- They are outrageously good quality! (shoes with her hand). I'd have all sorts, if I had the time. But I never have time for anything, I just leave them at the back of a wardrobe somewhere--- (opens the lid of a laptop)

25. N2: I guess it's, well, you can do all sorts of things out of all sorts of materials. I think it's a wonderful place that recycling centre, it has all these… 24. N4: Which one do you go to?

26. N2: The one at the end of Lönkka. It's about a block or two from my house. So it's, like, easy.

27. N4: The there is one in Vantaa, it's like far far away in Vantaa, I don't even know where it is (looks at the laptop, hands on the keyboard) but it is an incredibly big place.

28. N2: I think I have been there, too.

29. N4: Yes, they have all this furniture there.

30. N2: Or was it in Espoo? They have a huge hall for furniture, like, a big building for electronics stuff (shows with her hands) and a separately the clothes and stuff.

31. N4: Yes.. That's the same. But, like ..(fiddles with the laptop) these are rather nice these, like… shopping…

32. N2: (opens a water bottle) And then I do like the…well one day
when we have a big enough an apartment to buy furniture for, like to tune some old furniture, I mean, like an old armchair with a modern upholstering, well that looks cool!

Thus, according to the example of transcripts of this group, speaking turns 13-32 were united by me under two different topics: rugs and materials for its making (st 13-24) and recycle centre (st 25-32). This procedure was carried out with the transcripts of experiments of each group. However, some groups had topics that were almost similar to each other as shown in Table 3.

**Table 3**

<table>
<thead>
<tr>
<th>FS 1</th>
<th>Long discussion about studies and writing thesis (7-162)</th>
<th>taking the same ourse (st 2-6), participation in the experiment (st 7-16), course assignments (st 17-27), literature for thesis writing (st 28-36), thesis writing (st 37-41), thesis seminars (st 42-66), writing thesis (st 67-84), other studies and thesis (st 85-96), examinations (st 97-102), thesis group seminars (st 110-132), planning thesis wring (133-162)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 4</td>
<td>Long discussion of writing Master Thesis and studies (46-136 st);</td>
<td>reference to the experiment (st 2-16), process of having lunch (st 17-26), N2 speaks on the phone (27 st), reference to the experiment (28-35 st), N3’s injury (36-45st), lectures (46-51 st), N4’s need to go to WC (47), the course taken together (52-63 st), master thesis writing (64-75 st), methods for data analysis (76-90 st), master program (91-95 st), master thesis writing (96-136 st), courses (137-150 st), thesis writing (151-191 st)</td>
</tr>
</tbody>
</table>
Here, small strings of topics were united under one bigger topic, as it can be seen in the example. And one main theme was given for the discourse of the group. This theme was co-construction of the discourse.

To analyze the processes related to breaking out of meaningless situation, I utilized codes developed by Professor Annalisa Sannino for EMA project to describe the processes of breaking out of a meaningless situation:

- Definition of the situation – statements characterizing what was going on in the room.
- In search of meaning – statements which attempt to find explanation or reasons behind the situation, with reference to prior knowledge
- Sensemaking attempt- statements which attempt to find explanation or reasons behind the situation, with reference to prior knowledge
- Consideration of type of actions – considering what to do (or reporting what they considered to do) by voicing monologically or by negotiating with others.

By reading through transcripts, I identified patterns that matched the above outlined themes, for each participant.
6 SOCIAL DYNAMICS IN GROUPS WHO LEFT AND WHO STAYED

Participants of the groups who left the experiments were co-workers with strong pre-experimental affiliation, while those of the groups who did not leave the experiment were students who attended the same courses before the experiments. Social dynamics in groups who left differ from those who stayed is in the timing and extent to which they completed group dynamics stages. Groups of co-workers who left the experiments had obviously undergone all major steps of group dynamics. Groups who stayed experienced only initial forming stage, which started before the experiment, and continued during the run of experiments (Figure 8).

In the next sections of this chapter, I will go in detail through the process of social dynamics in groups who stayed and groups who left.
6.1 Social interaction between participants of groups

Pre-experimental relationship between participants dramatically influenced the degree to which they were set into a meaningless situation in the experiment. The following table shows pre-experimental relationship between participants.

Table 4 Pre-experimental relationship

<table>
<thead>
<tr>
<th>Groups</th>
<th>Group Name</th>
<th>Number of participants</th>
<th>Pre-experimental relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 1</td>
<td>3</td>
<td>Attending the same lecture</td>
<td></td>
</tr>
<tr>
<td>FS 4</td>
<td>3</td>
<td>Attend the same course. N2 and N4 did some joint group work for the course assignment</td>
<td></td>
</tr>
<tr>
<td>FS 2</td>
<td>2</td>
<td>Attending the same lecture, know each other for 4 years but meet only during the course</td>
<td></td>
</tr>
<tr>
<td>FS 5</td>
<td>4</td>
<td>All the participants are taking the course-mates of one program, they had group work in pairs for the course assignment</td>
<td></td>
</tr>
<tr>
<td>FS 3</td>
<td>4</td>
<td>Work mates, offices next to each other</td>
<td></td>
</tr>
<tr>
<td>FS 6</td>
<td>2</td>
<td>Workmates</td>
<td></td>
</tr>
<tr>
<td>FS 7</td>
<td>3</td>
<td>Share the same office, work in the same project</td>
<td></td>
</tr>
</tbody>
</table>

Note: Groups who stayed | Groups who left

No strong pre-experiment relationship | Strong pre-experiment relationship
Participants of the groups who left were affiliated with each other for a long time before the experiment. They possessed some personal background information about each other. In addition, they regularly spent much time together by having tight work relationships. These groups (co-workers) can be defined as secondary “social” groups according to categorization by Forsyth (2014), even though they possess some features of primary groups, such as loyalty, support of each other, frequent face-to-face communication and a high degree of cohesion (Table 4).

Groups who stayed can be characterized as secondary groups with the subcategory “collectives”. Participants of these groups were not in contact with each other regularly. They didn't have everyday face-to-face pre-experiment relationship with each other. They attended the same courses and met each other occasionally.

Compared to the groups who stayed, groups who left were more cohesive before the experiments. For example, participants of group FS 7 worked in the same research project and shared the same office space. This group’s participants pursued the same project goals. Group FS 3 worked in the same research department and their offices were close to each other. At least, within overlapping research projects they followed the same objectives.

These groups can be defined as “collectives” within secondary groups according to categorization by Forsyth (2014). These groups are rather aggregation of individuals, who share the same purpose but on a short-term period of time than a more cohesive group with a strong sense of entitativity.

This conclusion is in line with Lickel et. al (2000), who rated entitativity among co-workers higher (6.33) than that of students enrolled in a class (5.1).
Thus, groups of co-workers who eventually left the experiments formed more cohesive
groups compared to groups who stayed (Figure 9).

6.2 Social dynamics in groups who left

Group of co-workers who left the experiment had undergone all stages of group dynamics
starting from forming and proceeding further to storming, norming, performing and
adjourning. These processes were most probably completed before the start of the
experiments.

The evidence of their knowing each other before the experiment can be found in the
transcripts of the interview. During ‘the after-experiment interview’ each group was
asked a question: How would you describe the relationship you have with each other?
According to the answers and the dialogues in the experiment room it can be concluded
whether the group had passed the formation stage earlier.

When group FS 3 was asked about the relationship before the experiment they replied:

376. Experimenter: What is the relationship between you four?
377. M1: Aren’t we workmates?
378. M2: Like, collegial.
379. N3: Yes
380. M1: Well, for me the main idea was that, just that, all these people are workmates with whom there is too little time to talk.
381. N2: Yes, same here, and then, we have been doing work together more recently (with M2) which has been really nice. So, through that I thought that great, you’re here, too.

According to the replies of participants of FS 3, they were workmates who met each other at work almost every day and had rather long relationships with each other that were formed earlier.

Here is another example from group FS 6 that demonstrates that both of the participants had common friends and colleagues and were discussing the situations with them.

N2: M. stopped by yesterday, -in the afternoon. I told her, that we poured her - milk away.. She laughed, she said that she has a new -milk, so you because she sent a message, that V. had come to the same---
N3: Yes..
N2: Then it was--- like, she couldn't sleep, so she started reading the newspaper, and the first thing she read was stories from P. N. (?) (both laugh, N2 torso on the table)
N3: She/he harasses M…. That is superb too, when she gets these imaginary nauseas (?), came from the kindergarten, when she had the stomach flu and she had to get out of the bus---

It can be summarized according to this dialogue that the participants knew each other well enough and had many common topics and people.

The group FS 7 confirmed in the interview that they were also in tight work relationships with each other:
Experiment: How would you describe the relationship you have with each other?

N4: Now N2 can begin.

N2: Well, these are like wonderful people that have taken me into their project and they are thesis tutors, but also cheering me on like...much more than they need to be. So, like nice people.

N2: And of course we have work stations in the same room, so we see each other quite often, so, that’s really good.

The answers of group FS 7 make obvious that these participants were in long term relationships with each other already before the experiment.

Later stages of group dynamics such as storming norming, performing, adjourning, are task related. According to the experimental design there were no instructions given to the participants of the groups, and therefore, these stages couldn’t be observed during the run of the experiments. However, these groups were colleagues who were in tight work relationships with each other before the experiments. During the interviews, participants of these groups confirmed that they were jointly involved in task specific projects. For example, in the interview of the group FS 7, when asked about their relationship with each other, the following was revealed.

N2: Well. These are like wonderful people that have taken me into their project and they are thesis tutors but also cheering me on like ...much more than they need to be.

N4: It is pretty much the same with me. Then, I also think N3 is the good trusted player in this group. That we have worked for a long time, still like...In fact we have worked in the same room for N3’s entire working like. We entered the project at the same time. N2 is more fresh, but a promising new talent.

Another example is from the group FS 3.

M1: How come you’re working together?

N2: Well, we have this Master’s thesis project so through that lately a bit more...
385. N2: And we (with M1) work together more or less every day.
386. M1: Yes, we do. But for me the difference was that in those instances there is one dominating aspect and other are forgotten.
387. N2: Yes. And we (with N3) see each other almost every day, and so.
389. N2: As we are in the offices next to each other.

As we can see from the above examples, the participants of the groups who left worked in the same research projects and research departments. While being involved in task specific activities, these groups must have established norms, formed behavioral patterns, and reached certain performance objectives.

6.3 Social dynamics in groups who stayed

The participants of the groups who stayed were vaguely familiar with each other. Before the experiments, they attended the same courses but did not have every day face-to-face contact with each other. During the experiment some of the participants of the groups who stayed tried to get to know each other better.

For example, the participants of group FS 1 were students who attended the same lecture course. As soon as they entered the room they tried to get confirmed that they all are students of the same course.

2. M1: Are you guys too in the XX course, the in E.'s
3. N3: E.'s, yeah
4. N2: Yeah. In that organization, I can never member the course number?
5. N3: Yeah, me neither.

Another group who stayed is group FS 4. This was a group of three participants. Two of them were students of one master program and at the same time all of them attended the same lecture course. Participant N2 tries to confirm that N3 was in the same program earlier.
52. N4: Have you got, you're graduating as..?
54. N4: Right...
55. N2: Were you in the previous XXX program, or?
56. N3: No, I wasn't. This was the first [lecture related to the “XXX” program]. But if I had known about it so I would have considered seriously. It was extremely interesting. One of the best courses I have taken, I thought. How did you find it?
57. N2: You mean now, this one? Yes, it was efficient!
58. N3: It was very interesting…

Groups FS 5 and FS 2 had undergone the forming stage earlier. FS 5 was a group, which had intensive summer course and met each other regularly for the last weeks. So, the process of forming was not observable in transcripts of FS 5.

Participants of FS 2 group were familiar with each other for 4 years as they confirmed in the interview.

137. Experimenter: So, your relationship to each other is that you have...?
138. N3: Yes, so we have, what have studied now...
139. N2: ##...Four...
140. N3: # ...years...
141. N2: # We have been mates right from the beginning.

Thus, they didn’t go through the process of forming during the experiment. They knew each other for a long period of time, but they did not have face-to face contact daily.

Participants of groups who stayed did not accomplish any task related joint activities. Therefore, they did not go through later stages of group dynamics such as storming, norming, performing and adjourning.
7 DIFFERENCE IN THE DISCOURSE DURING THE EXPERIMENTS

There is an evident difference in structure and content of discourse in groups who stayed and groups who left as can be seen in Table 5 below.

Table 5

<table>
<thead>
<tr>
<th>Groups L/S</th>
<th>Group Name</th>
<th>Number of participants</th>
<th>Co-constructio (number of topics)</th>
<th>Number of speaking turns</th>
<th>Duration of experiment</th>
<th>Average number of speaking turns per part.</th>
<th>String of topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stayed</td>
<td>FS 1</td>
<td>3</td>
<td>Master thesis</td>
<td>162</td>
<td>30</td>
<td>54.0</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>FS 4</td>
<td>3</td>
<td>Master thesis</td>
<td>192</td>
<td>30</td>
<td>64.0</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>FS 2</td>
<td>2</td>
<td>X</td>
<td>338</td>
<td>30</td>
<td>169.0</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>FS 5</td>
<td>4</td>
<td>Research</td>
<td>264</td>
<td>30</td>
<td>66.0</td>
<td>7</td>
</tr>
<tr>
<td>Average (stayed)</td>
<td></td>
<td>3</td>
<td>1</td>
<td>239</td>
<td></td>
<td>88.25</td>
<td>14.2</td>
</tr>
<tr>
<td>Left</td>
<td>FS 3</td>
<td>4</td>
<td>0</td>
<td>363</td>
<td>28</td>
<td>90.8</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>FS 7</td>
<td>3</td>
<td>0</td>
<td>190</td>
<td>20</td>
<td>63.3</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>FS 6</td>
<td>2</td>
<td>0</td>
<td>237</td>
<td>27</td>
<td>118.5</td>
<td>21</td>
</tr>
<tr>
<td>Average (left)</td>
<td></td>
<td>3.0</td>
<td>0.0</td>
<td>263.3</td>
<td></td>
<td>90.9</td>
<td>19.3</td>
</tr>
</tbody>
</table>
The average number of speaking turns per participant in groups who stayed is approximately the same as in ones that left – 88.3 against 90.1.

The main difference is in the fact that the groups who stayed managed to form co-construction during the experiment. It can be explained by the fact the degree of cohesiveness of the groups influenced the quality of the discourse and consequently whether they were successful in forming co-construction or not. This conclusion is drawn from thematic analysis, where all the transcribed data was grouped into string of topics according to the relevance.

### 7.1 Discourse in the groups who stayed

Participants of groups who did not know each other well before the experiments were more likely to find some general topics for discussion during the experiments. When a group collaboratively created a general topic this may be named co-construction. At least three out of seven groups who stayed formed co-construction.

For example, group FS 1 managed to form co-construction and find a joint topic for discussion. During the experiment after entering the experimental room and getting a short confirmation that each of them was a participant of the same course, the group participants got engaged into the joint discussion of the topic of “writing master’s thesis”.

1. N1: Let's start the experiment soon! (M1 sit down first back to the mirror, other quickly follow)
2. M1: Are you guys too in the XX course, the in E’s?
3. N3: E's, yeah.
4. N2: Yeah. In that organization, I can never remember the course number?
5. N3: Yeah, me neither.
6. M1: I don't remember anything else, but the code
7. N3: It would have been easy for you to get ---motivate people in that in general
### Table 6  
String of topics in groups who stayed

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Num. of part.</th>
<th>String of topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 1</td>
<td>3</td>
<td>taking the same course (2-6), participation in the experiment (7-16), course assignments (17-27), literature for thesis writing (28-36), thesis writing (37-41), thesis seminars (42-66), writing thesis (67-84), other studies and thesis (85-96), examinations (97-102), thesis group seminars (110-132), planning thesis writing (133-162)</td>
</tr>
<tr>
<td>FS 2</td>
<td>2</td>
<td>considering how to act (2-13), reference to the experiment (14-18), N’s gym and scarf (19-20), reference to the experiment (21-25), eating and diets (26-50), reference to the experiment (51-53), upcoming film for the course (54-62), skiing (63-82), N#s fussing about apartment (83-87), reference to the experiment (88-89), course assignment (90-138), contact lenses (139-143), reference to the experiment (144-150), training in the gym (151-185), N2’s problems with her knees (186-196), reference to the experiment (197-204), menu of the canteen (205-215), noise outside (216-219), educational cruise (220-239), anti-nausea bracelets (240-271), reference to the experiment (272-287), spex (288-300), taking courses (301-318), reference to the experiment (319-320), taking courses (221-334)</td>
</tr>
<tr>
<td>FS 4</td>
<td>3</td>
<td>reference to the experiment (2-16), process of having lunch (17-26), N2 speaks on the phone (27), reference to the experiment (28-35), N3’s injury (36-45), lectures (46-51), N4’s need to go to WC (47), the course taken together (52-63), master thesis</td>
</tr>
</tbody>
</table>
According to the thematic analysis the range of the topics in this group was relatively scarce. Almost all of the experimental time they were involved in discussions related to writing master thesis. Out of the total 162 speaking turns that 7-162 were devoted to one general topic - “discussion of Master thesis writing” (Table 6). Thus, it can be concluded that this group formed co-construction. The experimenter interrupted their discussion after 30 minutes.

The participants of the dyad FS2 were students who attended the same course. This group stands out among the groups who stayed. Unlike other groups who stayed, they had known each other for about four years. At the same time, they did not have day-to-day relationship with each other. This could explain the fact that compared to other groups who stayed they had higher number of speaking turns per participants and failed to form clear-cut co-construction during the experiment. The total number of speaking turns in this dyad was 338. This is the highest amount of speaking turns among the groups who

<table>
<thead>
<tr>
<th>FS 5</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>writing (64-75), methods for data analysis (76-90), master program (91-95), master thesis writing (96-136), courses (137-150), thesis writing (151-191)</td>
<td></td>
</tr>
<tr>
<td>reference to the experiment (2-23), user survey and research (25-39), webpage’s functioning (40-44), reference to the projector table (46-49), reference to experimental design (50-73), N2 needs to leave for interview (74), clock on the wall (75-78), reference to the experiment (79-83), research and tests on making decisions (84-98), operations, research (99-107), reference to the experiment (108), decision making (109-112), reference to the experiment (113-121), course materials (121-123), activity theory (124-132), final assignment (133-151), discharging phone (156-170), check-in in the airport (171-194), metal detectors in the airport (195-217), laptops’ check-in in the airport (218-226), transportation from Oulu to Helsinki (227-259), Pendolino trains (260-264)</td>
<td></td>
</tr>
</tbody>
</table>
stayed and spend all 30 minutes in the room. The range of the topics in this group was wider than in the other groups who stayed. According to string of topics it can be noted that participants of this group didn’t stick to one topic for a long time during the experiment (Table 6). The longest discussion was the discussion of the assignment of the course they both attended.

Group FS 4 consisted of 3 participants, who were university students taking the same course. They were not in a long relationship with each other. This can be concluded according to their answers in the interview.

Total number of speaking turns in this group was 192. Starting from speaking turn 52 the participants of this group had a long discussion of studying and thesis writing (Table 6). All the topics from 52-191 can be combined as the co-construction of writing thesis and studies.

Group FS 5 consisted of four participants. They were all students participating in the summer course. The total number of speaking turns for this group was 264 (Table 6). Even though there are a wide range of topics in the string of topics for this group, most of them can be combined as “discussion of research with references to the experiment”. As the participants were familiar with this kind of waiting experiment they had comments and discussions of the experimental design and research during the experiment.

7.2 Discourse in the groups who left

Unlike the groups who stayed, the groups who left failed to form co-construction. Their discourse consisted of wide range of topics. Each topic had a short number of speaking turns and abruptly or sometimes smoothly was switched to another topic. The fact that the participants of these groups knew each other well and met each other face-to face regularly, influenced the quality of the discourse. In general, they covered a higher number of miscellaneous topics, had higher average number of speaking turns, and did not form co-construction in their discussions.

One of the groups, who left, FS 7, consisted of 3 participants. Participants were colleagues who worked over the same project and shared the same office space. They met
each other almost every day at work. This group had 190 speaking turns in total, with the discussion of 14 different topics (Table 7).

Table 7  String of topics in groups who left

<table>
<thead>
<tr>
<th>Group</th>
<th>Numb. of part.</th>
<th>String of topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS 3</td>
<td>4</td>
<td>M2’s problems with the administration (4-43), participation in the conference (44-58), doctoral students (59-77),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>doctoral student’s intervention project (78-111), doctoral students (112-123), theatre performances (124-137), culture voucher (128-146), movies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and actors (147-163), Finnish contemporary writer (161-169), M2’s brothers (170-179), roof renovation (180-188), construction issues (189-218),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N3’s leaving (219-224), book project (225-238), M1’s vocation holidays (239-246), car tires (247-260), M1’s place o vocation (261-300), N2’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>trip to France (301-307), N3’s leaving (308-318), new coming foreign students (319-347), N3’s leaving (348-349), feeling about being in the room</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(350-358), M1’s availability for N3 after experiment (359-363)</td>
</tr>
<tr>
<td>FS 6</td>
<td>2</td>
<td>reference to experiment (4-34), need to do studying (35-37), watching TV (38-50), reference to experiment (50-63), exams (64-70), clock and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>waiting at doctor’s (71-78), X-raying (79-93), reference to experiment (94-101), dryness of hands of N3 (102-113), time spent in the experimental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>room (114-119), colleagues/friends (120-124), stomach bug (125-132), reference to experiment (135-149), stomach and food (150-154), relatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of N2 and N3 (155-171), reference to the</td>
</tr>
</tbody>
</table>
It is obvious that the topics of this group cannot be combined under one co-construction. Also, it is important to note here that group FS7 discussed topics that involved some previous personal background information about each other. For example:

39. N4: Hmm, we started our family life so that we lived in H***---37 --- (laughter) (N4 shuts the laptop)---well, yes, 37 sq metres, like it was packed! A heavenly apartment!
40. N3: Where is it?
41. N4: In P-H***. (shows with hands) A sitting room, a tiny little bedroom, a kitchenette, I mean kitchen and a sauna and the works, and the whole side of the apartment giving to the sea shore.
42. N2: Also in our place the balcony makes a lot…
43. N4: #37,5 sq metres. Me, my husband, a newborn baby (counts with her fingers) and the man's relative (?)
44. N2: Nooo..
45. N4: Like, before our K*** was born, before I was checked out of the hospital with the baby, like, J***’s little sister had moved to our place for six weeks…

In this conversation N4 speaks about her personal experience with housing situation. Sometimes people who were familiar to all of them (friends or workmates) were mentioned. Another example:

135. N4: Well.. What does your boyfriend do?
136. N2: He is a data processing, well, Master of data processing.
137. N4: Oh?
138. N2: ..and he is --- well as a consultant…but that, that, planning something.
139. N4: So he's like an engineer?
140. N2: Yes, a bit like an engineer, like almost an engineer but not quite. A bit more of a human being! (laughter)

According to these examples, it is evident, that the relationships of the participants of this group are tighter than those in groups who stayed. FS7 group easily speaks about topics that require some personal information.

Another group that left was group FS 3. It consisted of 4 participants who were close workmates and some of them were involved into the same research projects. They had 363 speaking turns in total, and the number of the topics they discussed was 23 (Table 7). Topics in this group changed sometimes rather abruptly. There is no a common topic theme that can unite all these topics. The group FS 3 didn’t form co-construction. At the same time, the topics that were discussed in this group also demonstrate that participants knew each other quite well and included information that was personal or information that was related to their joint work.

59. M1: ...Then, we have it good like that, that we have-have in fact, like five doctoral students, who all are in school...
60. N2: # Well, then it all clicks
61. M2: #Yeah, right!
The dyad FS 6 consisted of workmates who met each other quite often. The total number of speaking turns for them was 237. The string of topics demonstrates the diversity of the discussed topics in this group (Table 7). Topics covered in this group cannot be united under one co-construction. The participants of FS 6 group discussed work related issues and mentioned people whom both of them knew.

On average there were more miscellaneous topics in groups that left. These groups did not form co-construction.

The participants, who were sharing the same office and were in contact with each other almost every day or worked at the same projects, were more likely to switch topics. The discourse they conducted was related to personal information that they possessed about each other.
8 FROM SOCIAL DYNAMICS AND DISCOURSE TO BREAKING OUT OF MEANINGLESS SITUATION

8.1 The influence of social dynamics and discourse on meaningless situation

Social interaction in groups before experiments and during experiment as well as group dynamics developed through discourse during the run of experiments influenced the degree of a meaningless situation they were placed in the experiments. The combination of these factors impacted on their decision as to whether to break out of a meaningless situation. These interactive forces can be visualized in the following figure.

Figure 10
For each type of groups (co-workers, and students attending the same course) the chain of impacts in the decision to break out of a meaningless situation in the experiments goes from:

- social interaction among group participants before the experiments (1 in Figure 10);

- occurrence of group dynamics with commensurate discourse during the experiments (2 in Figure 10);

- success or failure in group dynamics through discourse placing them in heterogeneous meaningless situation during the experiments (3 in Figure 10);

- and, finally, combined past effects in the chain impacting the decision as to whether break out of a meaningless situation in the experiments (4 in Figure 10).

Participants of the groups who managed to break out of meaningless situation had a strong pre-experimental affiliation. They had regular face-to-face contact with each other at work place. Some of them participated together in joint research projects. Group cohesion in these groups was higher before the experiment and they possessed high level of personal information about each other. Obviously, these groups had gone through all stages of group dynamics before experiments, starting with forming and going further to norming, storming, performing, and adjourning.

On the other end of the spectrum are groups who stayed. There was no strong affiliation and close interaction between participants before experiments. Participants of these groups were superficially acquainted with each other. They met each other during the course or lecture one or two times a week and didn’t have any joint activities beyond the activity that united them. The level of group cohesion was low in these groups.

During the experiments, we observed some dynamics developed through co-constructive discourse in groups of students attending the same courses, such as distribution of new roles through behavioral patterns that emerged. On the contrary, most group dynamics were concluded before the experiments among participant of groups of co-workers.
Therefore, there was a void of social dynamics during and co-constructive discourse in these groups during the experiments.

Participants of groups with strong pre-experimental affiliation were set in a more pronounced meaningless situation during the experiments compared to the other groups in which participants had weak pre-experimental affiliation as can be seen in the Table 8.

Table 8  Artefacts and pauses

<table>
<thead>
<tr>
<th>Groups Left /Stayed</th>
<th>Group Name</th>
<th>Group Description</th>
<th>Num. of part.</th>
<th>Long pauses</th>
<th>Total usage of artefacts</th>
<th>Average number of artefacts per participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stayed</td>
<td>FS 1</td>
<td>Students attending the same courses, weak pre-experimental affiliation, group cohesion</td>
<td>3</td>
<td>1</td>
<td>18</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>FS 4</td>
<td></td>
<td>3</td>
<td>1</td>
<td>21</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>FS 2</td>
<td></td>
<td>2</td>
<td>3</td>
<td>72</td>
<td>36.0</td>
</tr>
<tr>
<td></td>
<td>FS 5</td>
<td></td>
<td>4</td>
<td>2</td>
<td>55</td>
<td>13.8</td>
</tr>
<tr>
<td>Average (not left)</td>
<td></td>
<td></td>
<td>3</td>
<td>1.75</td>
<td>41.5</td>
<td>15.7</td>
</tr>
<tr>
<td>Left</td>
<td>FS 3</td>
<td>Co-workers, strong pre-experimental affiliation, group cohesion</td>
<td>4</td>
<td>0</td>
<td>16</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>FS 7</td>
<td></td>
<td>3</td>
<td>0</td>
<td>53</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>FS 6</td>
<td></td>
<td>2</td>
<td>16</td>
<td>107</td>
<td>53.5</td>
</tr>
<tr>
<td>Average (left)</td>
<td></td>
<td></td>
<td>3.0</td>
<td>5.3</td>
<td>58.7</td>
<td>25.1</td>
</tr>
</tbody>
</table>
There are several observations in discourse that confirm the above stated conclusion. For example, there was higher number of long pauses in groups with strong pre-experimental affiliation – on average 5.3 against 1.75 in groups with weak pre-experimental affiliation (Table 8). Furthermore, the total usage of artefacts (usage of artefacts per participant) is higher in groups of co-workers who had strong pre-experimental affiliation – 58.7 (25.1) compared to groups of students attending the same courses – 41.5 (15.7).

Taken together, we can conclude that strong pre-experimental relationship, high degree of social interaction before the experiments, and lack of social dynamics during the experiments in groups of co-workers placed them in a pronounced meaningless situation and resulted in their subsequent decision to leave the experiments. On the contrary, groups of students attending the same courses, who had weak social interaction before the experiments experienced some group dynamics and co-constructive discourse during the experiments, and therefore did not leave the experiments.

### 8.2 The process of breaking out of meaningless situation

In this section, I investigate the processes related to breaking out of a meaningless situation during the experiments in groups who stayed and groups who left.

I use themes developed by Professor Annalisa Sannino for EMA project to describe the processes of breaking out of a meaningless situation (Figure 11).
Below, I bring example of themes in codes related to breaking out of meaningless situation for each group.

**8.2.1 The process of breaking out of meaningless situation in groups who stayed**

Group FS 1 was the only group with zero codes in each category of themes related to breaking out of meaningless situation. All of three participants of this group actively participated in the conversation. They did not voice any interest in verifying the meaningless situation during the experiment.

The situation is different for group FS 2 as can be seen in Table 9.
Table 9  Codes related to breaking out of meaningless situation in group FS 2

<table>
<thead>
<tr>
<th>Codes of the group FS 2</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the situation</td>
<td>N2- Quite curious (5), there are cameras here (18), I didn't even know there was a classroom like this (24), Pretty confusing (148), We have been here for almost 20 minutes (201), &quot;The experiment will start soon&quot; (219), We have learned that there is a room like this here (277), to save [us] (337)</td>
<td>N3- no clock at all (203)</td>
</tr>
<tr>
<td>In search of meaning</td>
<td>N2- nothing is told (15), what is the experiment like that I'm about to participate (17), in other words not yet(experiment start) (24), one could have taken out some books with [me] (150), I was thinking like that they have brought these crowds of kids here (199), [she] said no preparations were needed (273). I don't even know that (275), I think I should go and get my water bottle… Do I dare getting up from this chair? (286)</td>
<td>N3- Oh, you asked, you tried to ask? (16), Yes, like &quot;the experiment will start soon&quot;? (23), Wonder how long this will take (88), Strange...(noise outside) (216), Where did that come from? (noise outside) (218), Wasn't this about learning (274), when I got the email it said that it was something related to learning. (276)</td>
</tr>
<tr>
<td>Sense making attempt</td>
<td>N2-there are cameras here, too and…help…--- like really, why (18), I'm somehow--- in the dark, I never knew this sort of room existed! (197),</td>
<td>N3- Wonder what is happening here? (51), Wonder what it happening here? (144), Now I got a bit--- / Now, I got some--- (146), Fancy having been</td>
</tr>
</tbody>
</table>
From this table we can see that participants of this group experienced nearly all stages of breaking out of meaningless situation except for the final stage – ‘Double stimulation’. Earlier stages of breaking out are more pronounced for this group.

Participants of FS2 had been in longer relationships with each other compared to other participants of the groups who stayed. This group was the most active among all of the groups who stayed in questioning the meaningless situation. For example:

88. N3: Are we just talking here or what? Wonder how long this will take?

144. N3: Wonder what is happening here?

272. N3: What is happening here?

274. N3: wasn’t this about learning? Or what?

In this example we can see that N3 was the most active participant of this group in questioning the meaningless situation. N3 was also a leader in initiating joint actions as can be seen in the following example.

12. N3: Should we go and sit here?

319. N3: Should one now take a book out or something and start studying?

<table>
<thead>
<tr>
<th>Consideration of type of actions</th>
<th>N2- Perhaps… coat off (13)</th>
<th>N3-What do we do? (2), should the mobile be switched off (6), Should we go and sit here (12), Sure, I'd think you can do that (287),</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double stimulation</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Participants of group FS 4 were not familiar with each other very well. They met each other only during the courses a couple of times a week. Thus, they were actively involved in co-constructive conversation, and hardly questioned the meaningless situations.

This group lacked 3 later stages of breaking out of meaningless situation such as ‘sense making attempt’, ‘consideration of type of actions’, and ‘double stimulation’ (Table 10). Nevertheless, earlier stages of breaking out of meaningless situation – ‘definition of the situation’, and ‘in search of meaning’ are clearly represented.

Table 10 Codes related to breaking out of meaningless situation in group FS 4

<table>
<thead>
<tr>
<th>Codes FS 4</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the situation</td>
<td>I suppose so (start of the experiment) (29)</td>
<td>Familiar faces (28)</td>
<td>-</td>
</tr>
<tr>
<td>In search of meaning</td>
<td>These experimental situations were introduced then during the orientation period (2), one could have looked for the paper s and to see what this was (4), I seem to remember that there were these double stimulation things (9), waiting stuff (13), We had an introduction of these tests (31)</td>
<td>if this is part of the test (30),</td>
<td>I was just thinking about it that(experiment’s introduction) (3), A lot of talk about there being an agreed meeting but nobody came at all (5), I somehow gathered that they have been alone in this situation (7), There is an observation wall like that there! (8), how one justifies when one can leave (14), I somehow thought this would have been another version of it</td>
</tr>
</tbody>
</table>
FS5 consisted of four participants who were participating in the intensive summer course. According to the transcripts of the experiment N1 was the only participant in this group who voiced her intention to leave at speaking turn 73.

N1: I actually would need to be doing an interview soon, so if nothing starts to happen in a short while I’ll have to make some noise.

In spite of verbalizing her wish to leave N1 didn’t take any actions and the experiment for this group was interrupted by the experimenter after 30 minutes.

There are very few examples from the later stages of breaking out of meaningless situation in this group. Participant of this group experienced earlier stages of breaking out of meaningless situation more intensely (Table 11).

<table>
<thead>
<tr>
<th>Codes related to breaking out of meaningless situation in group FS 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codes FS 5</td>
</tr>
<tr>
<td>Definition of the situation</td>
</tr>
<tr>
<td>In search of meaning</td>
</tr>
<tr>
<td>Sense making attempt</td>
</tr>
<tr>
<td>Consideration of type of actions</td>
</tr>
</tbody>
</table>
8.2.2 The process of breaking out of meaningless situation in groups who left

Participant of group FS3 experienced only ‘consideration of type of actions’ stage of break-out process (Table 12). In this group, N3 was the only participant who voiced her intention to leave.

219. N3: It would be nice to talk (tapping the table), but for how long will we sit here?

In this speaking turn she wanted to initiate the conversation about leaving, but she didn’t find support from other participants. Consequently, in speaking turn 348 she asked the second question that could sound as an offer to initiate some joint action.

348. N3: (is holding something that looks like a yo-yo and is stretching it out) So, are we going now?---(laughs)
349. M1: What else..(still rocking on the chair, now crossed arms over chest)###(laughter) -neutral point of view!!##
350. M2: Break!
351. N3: (stands up, puts chair under the table)###
352. N2: I find this really relaxing!!(laughs periodically)
353. N3?: ---for the rest of the day!###
354. N2: #That's what I thought!###
355. N3: #Fun to listen.. (leans on the table standing up)
356. M1: ##I found this to be a break! The morning was a bit hectic..!
357. N2: Yes..
358. M1: Just go! We can come after you! (laughs)

Table 12  Codes related to breaking out of meaningless situation in group FS 3

<table>
<thead>
<tr>
<th>FS3</th>
<th>M1</th>
<th>M2</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the situation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>In search of meaning</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sense making attempt</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Consideration of type of actions</td>
<td>I was just thinking that I'd take advantage of the situation (222), what are we gonna do now (308), We can banter!! N3 looks like she's going to work (309), Just go! We can come after you (358)</td>
<td>-</td>
<td>-</td>
<td>but for how long will we sit here (219), So, are we going now? (348),</td>
</tr>
<tr>
<td>Double stimulation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

According to the coding scheme of thematic analysis, the case of the dyad FS 6 was the active in all stages of break-out process (Table 13). What is important about this group is that they finally managed to co-construct joint action and break out as can be seen in the following example.

188. N3: Are we really going to wait for an hour here or are we going to leave at half past…
189. N2: Yes…I was just thinking, that what if we’d leave at half pastor are we going to stay for that hour nicely, which, or about an hour that…
In this dialogue, these two participants co-construct double stimulation and decide to transform the situation. This was the only group who explicitly undergone all stages of making sense out of meaningless situation, co-constructed double stimulation and broke out.

<table>
<thead>
<tr>
<th>FS 6</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the situation</td>
<td>really strange (15), It doesn't(make sense) (95), It is almost twenty five past (172), There isn't even a computer here (185), I am in a human experiment (187), they are by the way recording all the time (10). There behind that mirror (12), There's no sense in this (210)</td>
<td></td>
</tr>
<tr>
<td>In search of meaning</td>
<td>perhaps, like --- she wants, that you can trust some person (100), It was a kind of longer experiment, - about some relaxation, and something (119), I wonder if it was also a hoax that someone else is coming still (133), Perhaps this is what she meant, that it takes about an hour (58), until one or the other of us makes the decision, that now we leave (96), This can't be, that this starts fifteen minutes late (135), not feeling nervous anymore (173), you wouldn't wait for any other meeting for this long (210),</td>
<td></td>
</tr>
<tr>
<td>Sense making attempt</td>
<td>What if they wanted to get rid of us fast(13), what can these experiments be (17), What if this experiment is that we are here, and they are looking at how we react to that (28), are there any tasks here you need to solve (61), What if the entire</td>
<td>What this could be (20), What if they measure here, that do we start to call our work mates names behind their backs (26), This makes no sense (94), There's nothing here (96)</td>
</tr>
</tbody>
</table>

Table 13  Codes related to breaking out of meaningless situation in group FS 6
The group FS7 underwent ‘consideration of type of actions’ mostly, and clearly lacked earlier stages of break-out process (Table 14).

<table>
<thead>
<tr>
<th>Consideration of type of actions</th>
<th>I should have brought some work with me (30), I would like to go and see, what's under there, but I don't dare, if we are being observed (51), Should we press our noses there (53), if it had been a kind of anonymous invitation, so (118), we can't stay longer than that fifteen minutes (138), should we however tell a completely different version to people (175), what if we'd leave at half past, or are we going to stay (189), what are we gonna do (212), should we be there for that entire hour, or should we leave earlier (29), this is not I wouldn't have got into this if there hadn't been that kind of personal (117), otherwise one could read e-mails (186), Are we really going to wait for an hour here or are we going to leave at half past (188), I'd feel like leaving (210),</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double stimulation</td>
<td>what if we'd leave at half past (189), the next time when the arm of that clock goes (214), it is half past (235), Are we really going to wait for an hour here or are we going to leave at half past (188), Before half past, that is a few minutes from now (213),</td>
</tr>
</tbody>
</table>
In this group, N4 was initiator of the action to leave the experiment (Table 14). Almost by the end of the experiment N4 made an offer that was decisive for the outcome of the experiment for this group.

179. N4: How about getting some coffee? Regular latte, cappuccino...

As a result of this offer the participant N4 left the room and interrupted the experiment. Therefore, summarizing the above said it can be summarized N4 was an initiator of the action that interrupted the experiment.

Table 14  Codes related to breaking out of meaningless situation in group FS 7

<table>
<thead>
<tr>
<th></th>
<th>FS 7</th>
<th>N2</th>
<th>N3</th>
<th>N4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of the situation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>I bet we are the dancing clowns (4),</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>this is being recorded (99),</td>
</tr>
<tr>
<td>In search of meaning</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sense making attempt</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Consideration of type of actions</td>
<td>Can I take out a water bottle(5), Yes! Let's have a thesis(188)</td>
<td>-</td>
<td>How about getting some (coffee) (179), then we'll talk about the Master's thesis (187),</td>
<td></td>
</tr>
<tr>
<td>Double stimulation</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
8.2.3 Differences in the process of breaking out of meaningless situation in groups who left and groups who stayed

Process of breaking out of meaningless situation in groups who stayed was different compared to that happened in groups who left (Table 15). Groups who stayed were more explicit in questioning the meaningless situation and attempting to find explanation or reasons behind the situation – average frequency of “definition of the situation” in groups who left was 3.75 compared to 3 in groups who left, while “search of meaning” frequency in groups who stayed was 9.5 against 2.7 in groups who left.

Table 15 Summary of codes of breaking out of meaningless situation

<table>
<thead>
<tr>
<th>Group left / stayed</th>
<th>Group Name</th>
<th>Numb. of particip.</th>
<th>Definition of the situation</th>
<th>In search of meaning</th>
<th>Sense making attempt</th>
<th>Consid. of type of actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stayed</td>
<td>FS 1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>FS 2</td>
<td>2</td>
<td>9</td>
<td>15</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>FS 4</td>
<td>3</td>
<td>2</td>
<td>11</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>FS 5</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Aver. per group type</td>
<td></td>
<td></td>
<td>3.75</td>
<td>9.5</td>
<td>2.75</td>
<td>1.75</td>
</tr>
<tr>
<td>Left</td>
<td>FS 3</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>FS 6</td>
<td>2</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>FS 7</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Average per group type</td>
<td></td>
<td></td>
<td>3</td>
<td>2.7</td>
<td>3</td>
<td>7.3</td>
</tr>
</tbody>
</table>

The later stages in the process of breaking out were more intense in the groups who left. These groups have successfully transited from sense making stages to breaking out of meaningless situation. The average frequency of “sense making attempt” for the groups who left was 3 compared to 2.75 in the groups who stayed, while “consideration of type
of actions” was 7.3 in the groups who left against 1.75 for the groups who stayed. The groups who undergone all these stages ended up with breaking out.

In summary, groups of students who attended the same courses where more successful in the initial stage of the process of breaking out of meaningless situation, while groups of co-workers proceeded faster to later stages of this process. It is therefore understandable that groups of co-workers eventually broke out of meaningless situations, while groups of students failed to make it.
9 CONCLUSION

This study investigates whether social dynamics and discourse in groups placed in uncertain situations is related to their breaking out of meaningless situation. Uncertain situations are created through Vygotskian type double stimulation experiments run on groups of people in University of Helsinki during 2012-2013. In these experiments, groups consisting of 2-4 people are escorted into rooms and left on their own without specific instructions and observed whether they break out of meaningless situation by leaving the experiments after 30 minutes. In the context of these experiments, I explore three main research questions: 1) differences in the discourse; 2) differences in the social dynamics; and, 3) relationship between social dynamics, discourses and break out of meaningless situation that took place in the groups who stayed and the groups who left the experiments.

Even though the experiments were also run on groups consisting of people with mixed nationalities, and Finnish nationalities with arbitrary activities, I concentrate on groups including people of Finnish nationalities with shared activity. I select these particular groups for the study to better isolate the effects of social dynamics from other confounding factors such nationalities and types of activities.

I conduct thematic analysis of data to identify patterns and transform qualitative information into quantitative representation. I code the transcribed video-recordings of the experiments and identify themes capturing social dynamics, discourse patterns, and break out process. To investigate discourse, I construct codes for strings of topics and verify the emergence of co-construction.

From the analysis of data, I draw the conclusion that group cohesion stemmed from social interaction between groups before the experiments, had a decisive impact on group dynamics, discourse and the process of breaking out of meaningless situation during the experiment. Thus, the groups who left the experiments were co-workers that constituted strongly cohesive groups that accomplished all major stages of group dynamics before the experiments. Therefore, no further stages of integration through group dynamics were necessary for them during the experiments. These groups where placed into a pronounced
meaningless situation during the experiments, and hence, conducted discourse that lacked co-construction. The groups of co-workers were fast to proceed through the process of break out of meaningless situation from questioning and searching a meaning behind the situation to attempting to make a sense of the situation, considering specific actions, and ultimately breaking out of meaningless situation.

The situation is diametrically opposite in groups of students who did not leave the experiments. The participants of these groups attended the same courses and therefore, knew each other only superficially. Before the experiments, they had undergone only primary stage of group formation, and constituted less cohesive groups when compared to groups of co-workers. During the experiments, they experienced further dynamics in their group formation accomplished through co-constructive discourse. Interestingly, initial stages of the process of breaking out of meaningless situation were more intense in groups of students than in groups of co-workers. Groups of students questioned the situation and tried to find explanation behind the meaningless situation more frequently than it was the case in groups of co-workers. However, groups of students did not proceed as fast as groups of co-workers to later stages of break out process. Thus, groups of students had lower frequency of sensemaking attempt of the situation, and consideration of specific actions that could lead to actual break out of meaningless situation.

This study has both theoretical as well practical significance. On theoretical level, the findings of this study contribute to understanding of driving forces behind social dynamics and discourse occurring in uncertain situations. Moreover, the findings confirm the role of the object of activity as being the fundamental force behind processes in collective activity systems. Object of activity that intertwined group participants, determined their cohesions, and nature of the relationships between them prior to experiments as well as during the experiments. This has ultimately impacted on the dynamics, discourse and breaking out of meaningless situations by the groups during the experiments. On practical level, the outcomes of the study can be applied in further development of Change Laboratory approach that aims at creating new knowledge through collective endeavors within rapidly changing environments.
The findings of this study can be verified in further studies that better incorporate pre-experimental social interactions between groups and subsequent dynamics when placed into meaningless situations. In this set-up, researchers would identify groups of individuals that have specific social dynamics features and compare the outcomes from these groups’ placement in meaningless situations to those observed in other control groups.
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