



Process Report

EXPERTS IN TEAM
TPG-4851 GULLFAKS VILLAGE
GROUP – 6



NTNU – TRONDHEIM
2010

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- Abstract

The process report reflects how students from different nationalities, cultures, interests, knowledge and aspiration come together and form common goals and work towards achieving the goal. This report highlights the differences or conflicts which arises in teamwork, the reasons behind those conflicts, the way those conflicts have been solved by the application of theoretical rules and guidelines.

Brief introduction about the team members shows the diversity of the team. It also indicates the team member's expectation from EiT, aspirations, initial opinion about the course and the way it changed through out the course. Five important team dynamics give the complete picture of the team development. Personality tests indicate the behavioural pattern of the team members and team work evaluation test shows the improvement in good chemistry among team members. Overall report shows evolvment of team work during the semester.

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1. Introduction

Main purpose of the EiT is that creating an arena where, students can learn to solve the technical problem given, while working with the students from multi-disciplinary setting and different culture. The team which has been discussed in this report consists of student from five different study fields and five different nationalities working towards improving oil recovery. Main aspect of the work is that along with the technical result of the project in hand; team should also highlight the way team has worked together.

We have different expectation from EiT. Team member's initial view and final comments upon teamwork shows how team members have improved their social interaction and learned to appreciate team work.

Five important element or team dynamics have been identified in order to give the complete idea of the team performance. Important team dynamics which have been discussed here are; involvement and goal definition, decision making, information sharing, distribution of task, and handling of difficult and uncomfortable situations. Under each of these elements, it has been explained that how different conflicts occurred because our diversities and also limited experience and knowledge about teamwork. However in the end enormous team development can be seen because of the theoretical knowledge and equal efforts by the team members to deliver a common goal. Johnson & Johnson [1] discusses the guidelines which can be effectively used maintaining good working relationships among team members. The way these guidelines are applied under different conflicts is very clear in the report. Schwarz [2] ground rules are being used to solve the conflicts and to avoid uncomfortable situation.

The relationship between facilitators (lecturers, student assistants) explains how team has utilized external guidance and how team has interacted with someone external to team. Hence process report reflects what the team has learned while working in multi-disciplinary team.

LIFO test provides information about frequently used behavioural pattern of the person. The result of the LIFO test is being used to find the balance among different behaviours and thus increase the productivity of the team. Same way, team work evaluation test indicates that how team has been performed from the beginning to end stage. It is a qualitative evaluation which is graded by all the team members. Grades are their view upon team performance. It is shown that in all the team dynamics team performance has been improved tremendously.

2. Team members

In this section, all the members have given a short interview, where they say something about themselves and about their expectations to Experts in Team.

2.1. David

I am a master student in 'Coastal and Marine Civil Engineering', which is quite relevant with my previous study in civil structural engineering. I have been working for some years in the oil and gas industry, which gave me the motivation to choose this village, especially because of my awareness of the industry. In my experiences, I have been working in the multi disciplinary teams in several projects. Having the roles covering general surface facilities engineering, with main disciplines process and mechanical engineering.

During this project I believe that I have learned a lot of new components related to reservoir engineering. I have also had a chance to discuss and share with the other people in the group about mine and their challenges, and exchanging ideas on what is the best way to approach the problem.

2.2. Ehsan

My name is Seid Ehsan Marashi. My friends call me Ehsan. I am Iranian and I am studying natural gas technology.

The most important thing that encouraged me to take this course is my interest in finding out how I should work in a team. I have some experiences from before, but there were rules that I have learned about now that I didn't obey. In some earlier situations of group work we have had a leader who told us what to do. In other cases we have just been a group of friends who have worked on a project. Then we knew each other, and we knew how to solve conflicts and problems in a friendly manner. In this course I wanted to learn about the rules which I can use in all situations, theoretical rules!

At first this course did not attract me, because I found that this was just a technical project. It was not like I had pictured it, it was far from my idea about a course where I could learn about teamwork. Little by little it got better, I found out about how I could handle difficulties when I work in a team and how I should work with people who have different backgrounds and cultures.

I am so happy now that I have reached the goals I had before taking this course. It was useful for me, I found my problems and tried to solve them. I am satisfied with what we did as a group.

2.3. Pratima

I am a student of Project Management with bachelor's degree in Industrial Engineering from India. Somehow my background encouraged me to select Gullfaks village in EiT. I was always fascinated by the oil industry and the importance of the oil in social, political and industrial arena. Hence, I thought that this subject would give me a chance to know more about petroleum industry.

I did not think much about the group work before selecting the village. Previously I was a part of the team work because; in Project management we were encouraged to do a project in the team. So I thought that I knew everything about team work and personally I did not believe in team work because I thought that it involves compromises, confusions and ego problems. I must admit that Eit helped me to change my opinion about team work in a positive manner.

In this course I learnt something about Petroleum field as I expected and I was satisfied with it. More importantly I learnt to appreciate team work and understood the importance of team work. Here we got an opportunity to understand the problems we usually face while we work in a team and we learnt how to solve those problems scientifically. I understood the major difference between my team work in other subjects and the team work in EiT. The difference is that in other subjects we did not try to understand the conflicts and we only concentrated on finishing the work within deadline. In EiT, team work was given equal importance with other deliverables of the project or team.

Over all, I was happy to be a part of this village in EiT and I was extremely happy with all the team members. I am looking forward to use the experience in my studies and career.

2.4. Yugal

My name is Yugal Kishore Maheshwari, I come from Pakistan and doing MSc in Reservoir Engineering. I hold a bachelor's degree in Petroleum Engineering and have been working in Oil & Gas Company in Pakistan as a Field Production Engineer since 2004 to 2009. During that period, my position was at an onshore field in a tribal area where massive military

operations were carried out against miscreants and I worked there with gallantry, despite of life threats.

Previously in my bachelor's program, I have not had any experience working with girls in a group. Experts in Team is my second experience at NTNU and I am more comfortable when talking to and discussing problems with girls.

I liked working with people of different nationalities, cultures and genders in EiT without any conflicts, and my overall experience has been satisfactory.

2.5. Therese

I specialize in petroleum geophysics and because of the relevance to my field of study I wanted to be in the Gullfaks village for the Experts in Team course (EiT). I have heard different things about EiT from students who have participated in the course before, both positive and negative. I expected EiT to be a good experience where I could learn more about teamwork in theory and put it into action, I thought that it would be nice to learn more about the other fields within the petroleum business and also learn how to work with students who have a totally different background.

I have never liked group work as I think that I am very conscientious about the work I have to do and I have mostly ended up doing all the work for the group. Therefore I was a little bit concerned about this when we were going to work in a group for a whole semester. I am not a big fan of mandatory attendance either, as my semesters are often filled with travels and other meetings to attend, and I like to plan my time so it fits with all the other tasks I have.

My views upon group work have changed during this progress, because all the group members have contributed more than what my expectations were and I think that we have had a nice tone. There have been some disagreements, but I think that those have contributed to the progress. I still like to have meetings where we organize and distribute tasks among the group members, and then I can go somewhere quiet to work on my task, just because I have difficulties focusing when I have a lot of people around me.

Usually I have taken the role as the group leader, because I want things to happen efficiently and I want to know what has been done and what needs to be done. This time around the group chose me as the group leader, because I wanted to be the leader. I haven't needed to use my role as we have all discussed and come to good conclusions together as a team. There

have been some episodes where I have said that we need to get going, but that I would have done if I wasn't the leader too.

3. Team development process

In this section, we will introduce important parameters that have had influence on process of team development. We found that there are five important parameters which have influence on team work. Later, we explain about them in detail.

3.1. Involvement and Goal definition

All the team members have not been a hundred percent involved during the performance stage, as some of us were lacking some technical background required for the project. However our goals were very clear from the beginning of the project. That helped us to involve ourselves at later stages.

While making the cooperation agreement, the following goals were set by the team:

1. To learn about the Gullfaks Sør field, as well as group work.
2. Get the best grade.
3. Manage to get a theoretical 10% IOR for the Gullfaks Sør field by completing the tasks.
4. Strict focus on the task at hand.
5. To be efficient and try to finish all the work on Wednesdays.
6. Have fun in the group
7. Maintain open discussion and feedback at all times.

It is very evident that we did not highlight much on teamwork while setting our goals in the first draft of the cooperation agreement. Initially the concept called teamwork seemed less important than the problems given by Statoil. Hence the goals were made, based on the technical aspect of the project. Also, we were quite efficient at forming goals and adhering to them throughout the project. According to Guidelines for Creating Effective Groups, the first guideline says “Establish clear, operational, relevant group goals that create positive interdependence and evoke a high level of commitment from every member”. [1]

We managed to show required involvement in order to achieve the above mentioned goals. It was evident that involvement was not so good for a few of the team members when it came to

the technical part of the project. In one of the incidences, we all agreed to read the reservoir management plan and upload keywords onto it's learning, but Ehsan and Pratima did not finish the task. One of the reasons was lack of technical knowledge and interest. Yugal, David and Therese showed complete involvement in this task and they were efficient in uploading their key words on time. Pratima did not finish the task. She found it difficult to understand the concepts and did not realize the importance of doing it. Ehsan had read his section but did not upload the keywords because he thought that team was going to discuss it in class. Next Wednesday we all got occupied in the activity with the student assistants and we forgot to discuss the reservoir management plan. Hence we failed to understand the problem of involvement. However, after two weeks David brought up the issue that Ehsan and Pratima had not finished the tasks that were assigned to them and we understood that we had problems concerning involvement. In order to solve this problem, we openly discussed it and we used guideline 4 to create an effective group and see how we could distribute future tasks. Guideline 4 says: "In effective groups, members' power is based on expertise, ability and access to information" [1]. Based on this guideline we distributed the work according to our expertise and abilities. Hence, everyone showed greater involvement at the end of part A, part B and in process report.

3.2. Decision Making

A method for decision making has had an important role in the improvement of our teamwork. When all team members have been involved in the process and have agreed upon the decisions, the decisions have been implemented and supported by all team members.

Schwarz designed nine ground rules for effective groups. They will be explained further down in this report. The ninth rule is about decision making. "There are four types for decision making processes:

1. Consultative: Leader consults with group members, then the leader makes a decision.
2. Democratic: Leader and group discuss issue, then vote. Some possibly weighted.
3. Consensus: Leader and group members discuss issue and reach unanimous agreement.
4. Delegative: Leader delegates a decision to the group or subgroup, sometimes within the leader's identified constraints." [2]

In the third week of EiT, our group decided about having a group leader or not. All of us agreed that we needed a group leader to communicate with external people like professors, student assistants, and Statoil. Furthermore, we thought that we needed someone to handle the it's learning web page as a tool for information sharing. But Pratima disagreed. She meant that as we are all in the same level of experience, we could not have any leader to tell us what we should do. She believed that we participate in this course to learn more about teamwork, and having leader to tell us what we should do has conflict with this goal. After a long discussion we decided to vote and we ended up by having a leader in the group, Therese was chosen.

In the fourth week there was a conflict between Ehsan and Therese which will be explained under title of “ Ehsan and Therese argues when Ehsan wanted to leave after lunch.” Ehsan wrote in his log “ I am so sad about what happened today, maybe it was because of that Therese has some idea about leadership. I think I must clear something about the leadership in the next session.”

In the fifth week, we revised our cooperation agreement and changed the word leader to coordinator and specified the responsibilities of the coordinator, see section 4. In general, we did not have any leader who had a specified role of making decisions. Therefore the consultative and delegative types of decision making could be excluded from our group.

For decision making, this was put into the cooperation agreement. “ In terms of disagreements, at first, all the members must try to find a solution. Finally, if all the efforts do not have any result, they can make a decision by voting.” (Terms and Conditions, section 6, second revision). Going back to theory, we decided to make the decisions by the consensus type, and if we could not reach any result, we were to use the democratic type.

Below we have referred to a few situations in which we used consensus methods and democratic methods.

3.2.1. Consensus method

“In consensus decision making, everyone in the group is involved in making the decision. A decision is reached when all group members can support it and agree to implement it given their roles. In this definition of consensus, if one person does not support the decision, then the group does not have consensus.”[2]

In almost all situations we tried to reach the agreement by the consensus method. For instance, when we decided to read the management plan for the Gullfaks field, we distributed the chapters in a way that would suit everybody's interest. Ehsan wrote in his log about this situation “ I am really happy. I really like David, as he distributed the tasks based on our background and interest. After sometime, today, I felt I am useful for my group.”

During our cooperation we needed all the group members to support the decisions and to do their best to finish our task on time. Using the consensus method of decision making helped us to improve the atmosphere and reduce the conflicts which could waste some of our time.

Furthermore everyone felt that they were involved in the task and encouraged the others to do their best.

“Consensus can be used throughout the time a group is solving a problem, not just at the end when members select the best alternative. Whenever the group is about to move to the next step of the problem-solving process, it is appropriate to reach consensus to do so.”[2]

When we wanted to analyse the economy for part A of the project, we had a few disagreements in the group. Ehsan and Pratima thought that they had to consider the worst and the best situation for the cost of drilling a platform or installing subsea equipments. On the other hand, Yugal and David believed that we had to analyse the sensitivity of the cost related to different parameters. After some discussion, we decided to do both of these approaches. Our results turned out great.

3.2.2. Democratic method

Though in the consensus method everyone gets satisfied with the decision, in some cases it can take a lot of time. Since our time was limited, we were sometimes forced to use the democratic method.

“In democratic decision making, the full group discusses the issue and is involved in making the decision; a decision is made when some percentage of the group agree.” [2]

Although we have tried to use the consensus type of decision making, in some cases we have been forced to vote. For instance, when we selected our task for the part B of the project we had to vote. Ehsan thought that since most of the group members, except Therese and Yugal were not very familiar with the topics at hand, it was better if they could choose the task which was closer to Yugal's and Therese's background. David wanted to choose a challenging

task, while Therese was a little worried, that if we chose the task where she knew the most, the others would not do much work and just rely on her. As our discussion did not have any result, we voted to choose our topic for part B.

In this method, the vote of the different members can be weighted. In our group, since all of us had about the same experience with working in teams and we wanted to learn more about teamwork, all the members' vote were weighted equally.

3.3. Distribution of task and Planning

Planning and distribution of the tasks were quite efficient from the beginning of our teamwork. Initially we had different views on distribution of the tasks. Yugal wanted everyone to work on each task together and he thought that working together helped all of us to get a better understanding of the entire project. The rest of the team thought it would take more time than required and that it wouldn't be as efficient as necessary concerning the time available.

In the beginning of the course when we had to learn the Eclipse simulation software, we started off by gathering all team members around the computer and one person would run the whole simulation. As Yugal and Therese had related background, they took care of the simulation part. David showed keen interest and worked on weekends and gained sufficient knowledge about Eclipse. Pratima and Ehsan would just sit back and have a look at the computer screen, and tried to learn the software, but were not able to get a hold of the technique. As a result everyone realized that teamwork would be efficient by dividing the tasks. Hence we divided the task on Part A. Therese chose the topic related to geology and geophysics as she has good knowledge of the area from studying petroleum geophysics. Yugal wanted to work on the simulation part as it was related to petroleum engineering and David decided to join Yugal because he had gained sufficient knowledge and interest in the simulation part. Pratima was happy to work on the economic part of section A. Ehsan decided to work with Pratima as he was eager to learn about economical analysis. Hence task was divided according to individual interest and their field of study.

In part B, Pratima wanted to work on the process report. This was closer to the subjects in her program, organizational management. Ehsan agreed to work on process report too and surprisingly he showed great interest in the theories related to teamwork. It was a turning

point for Ehsan's attitude towards the course. Also, it made him feel more involved with the others and he showed more enthusiasm towards the teamwork. Hence, the way we divided the tasks, helped us to accomplish our task efficiently.

3.4. Uncomfortable and Difficult situations

We experienced some difficult situations during our work, mostly in the beginning of the course. The most important reason for our conflicts is the fact that we are all from different countries and cultures. English is not our native language and sometimes we had problems expressing our feelings and to discuss with ease. Most of us had no experience with working in an international group.

At first, we spent a lot of our time doing the part A of the project. We, therefore, did not have enough time to work on the process side. Almost all of the conflicts belong to this stage.

Therese wrote about this in her log book "The first two Wednesdays I had to concentrate myself in order to understand everything that was said in the group. This was mainly because all the group members speak English differently. There weren't very many big problems that accelerated from the language barrier, just minor mistakes in the understanding of things. For instance; we had a game where everybody should get to know each other better by one telling the other a story from his or her life, and then tell the rest of the group. Yugal and I were put together and I didn't understand everything he said. But I pretended to understand. We spent a lot of time on the task and we didn't have time for me to tell him my story. I was kind of happy with that because I couldn't come up with a story anyway. But when I was supposed to tell the rest of his story, I shortened it and had him help me a little because I hadn't got all the points.

When it comes to culture, the main differences are the way we say things. I think that a few arguments between Ehsan and me have started because we have misunderstood the real meaning or message of what we were trying to say."

Ehsan thought in the same manner as Therese. He wrote in his log "There are some differences between Iranian culture and Norwegian. I was wondering why Norwegian people did not answer me when saying hello to them, even though I knew them. In my culture, that is very bad. Today, one of my friends who has been in Norway for three years, solved this

problem for me. He said that Norwegians say hello just once during the day. And it is different from our culture in which we say hello every time we meet our friend.”

In another situation Ehsan wrote “Today, I was really angry with Therese. She was so rude to me when she wanted to tell me that I couldn't leave the group after lunch. She could have said it to me in a nicer way. Maybe that is because of the differences between our cultures. Iranians are used to saying their ideas in a way so that they don't bother anybody else, Norwegians are very frank and say their ideas openly. I have had a similar experience before.”

“There are nine ground rules of Schwarz that can help a group to be more effective:

1. Test assumption and inferences.
2. Share all relevant information.
3. Use specific examples and agree on what important words mean.
4. Explain your reasoning and intent.
5. Focus on interests, not positions.
6. Combine advocacy and inquiry.
7. Jointly design next steps and ways to test disagreements.
8. Discuss undiscussable issues.
9. Use a decision-making rule that generates the level of commitment needed.”[2]

Most of our conflicts are related to rules number 1 and 3. Especially the problems concerning weakness of our English and different cultures. The explanation of how we managed to solve these problems will come later. Here are the different rules explained in detail:

1. Test assumption and inferences

“When you assume something, you take for granted that it is true without verifying it. When you infer something, you draw a conclusion about what you do not know on the basis of things that you do know.”[2]

One of the problems which we had at first was that we inferred the other group members' meanings based on our views. We compared the behaviour of the group members by what we thought was true about each other. This was based on our beliefs and cultures. It took some time to get familiar with everybody's behaviour and to understand how to act in an international group.

Argyris and Schon have designed a ladder for making inferences.[2] In the first step we directly observe data which we face, including what people are saying and their non verbal behaviour. After that, we select data from what we observe. Most of this information is selected without awareness.

In the second step, we infer data by translating them to our own words. " At the third rung, you evaluate and explain what you have translated and labelled at the second rung. Whereas on the second rung you describe what is occurring, on this rung you judge it and create a causal explanation" [2]. And finally we decide how to react.

It should be considered that this process happens fast. One of the problems which we had is that we did not test our inferences about each other. Therefore the atmosphere was not calm in all situations. For the members to cool down and start working and making decisions took a long time.

"Making inference is not a problem; you must do that to make sense of what people are saying. First, you are usually unaware that you are making inferences, so you consider the facts rather than hypotheses. Second, the inferences you make are often high-level inferences. For example, if someone disagrees with what you are proposing, you may make a high-level inference that the person is trying to undermine your plan, rather than a low-level inference that the person's needs are not being met by our plan. Third, you do not check with the people you are making an inference about whether it is accurate; you simply act on it as if it is true." [2]

We were successful to solve the conflicts which were related to this category. In the middle of the term we knew each other better and found that all of us were eager to reach the goals that we had agreed upon. We accepted all the disagreement because we were sure that we did not want to make a delay in our work and they had just helped us to understand each other better.

When Therese, Ehsan and David told us that they had to be absent for some of the sessions, the rest accepted their reasons, although they could infer that they did not want to work as much as the rest.

2. Share all relevant information

“Sharing relevant information ensures that members have a common base of information on which to make an informed choice and generate commitment. If people make a decision and later find out that others have withheld relevant information from them, they feel they were prevented from making an informed choice; sometimes they withdraw their agreement. Even if they do not, they may implement the agreement with little commitment.”[2]

Yugal and Therese are familiar with petroleum engineering, but the rest of the group member's background is different. Yugal and Therese have tried to teach the rest of us about some of the technical issues, they had a few presentations for us about relevant topics needed for the technical part of the project. Reading the Gullfaks management plan helped us to get a faint idea about the project.

David and Yugal have some experience from industrial oil companies. For the economic analysis they shared their knowledge and that helped us greatly. Ehsan and Pratima shared whatever they knew about process of teamwork as they were responsible for writing the process report. As a result, we gathered the knowledge needed for the project and everybody felt that they were involved.

3. Use specific examples and agree on what important words mean.

As explained before, one of the serious problems we had was our verbal communication. We spoke English with different accents and words and that lead to some confusion when we discussed issues. After the LIFO test, Ehsan wrote in his log “I am in a category of supporting giving people. When my foreign friends saw that, they were very surprised. The result is acceptable for me. My Iranian friends think that I am supportive. I think that I have problems in communicating with foreigners easily. When I want to discuss, I have to struggle to find the suitable English words and that requires a lot of concentration, which might make me sound harsh and aggressive. That might be the reason for why people of other nationalities think that I am not a supportive person.”

“Using specific examples and agreeing on what important words mean is one way of sharing relevant information that generates valid data. When a member unintentionally agrees or disagrees with another, it is often because the same word means different things to them.”[2]

After some conflicts like when Ehsan was left out of the group's discussion and decision about the economics in part A and his work was neglected which we explain it later,. we tried to solve our problems related to this category by using clear words and examples. In the incident when Ehsan was left out, we didn't tell him everything and tried to brush over it. That was not a good approach.

When we were going to write the report we discussed what was better to include and everybody were able to say their opinion. When it came to the evaluation test of our teamwork, Ehsan wrote guidelines so that everybody understood what to contribute with. For the economic analysis Yugal presented something similar, that he had worked on.

4. Explain your reasoning and intent

“Using this ground rule means explaining to others what leads you to make a comment or task a question or take an action. Explaining your reasoning and intent includes making your private reasoning public, so that others can see how you reached your conclusion and can ask you about places in your reasoning where they may reason differently. This includes making your strategy transparent for managing the conversation. In a unilateral control approach, explaining your reasoning is a problem because it enables others to point out flaws in your reasoning, which reduces the chance that you can win in discussion.”[2]

This rule has been used in our group from the beginning of the course. We have all explained our reasons for what we have done in the technical part of project and we have not been afraid to tell the others about our ideas even if they seemed silly. As Pratima's background is project management, she asked a lot of questions about the technical part which started with sentences like “I want to ask a question that might sound stupid to you.” We supported each other and tried to come up with good explanations for all the questions the group members had, and we agreed that there were no stupid questions.

For the economic analysis, Ehsan tried to refer to another project related to Statoil, while Yugal and David referred to their experiences from the industry. We knew that reaching the goal of the project was important to all of us, so we have all showed an open mind to new

ideas. That was a risk reducer and helped us seeing new ways of solving problems and not ignoring solutions that could benefit the group.

5. Focus on interests, not positions

“An effective way for members to solve problems is to begin by sharing their own interests. Many groups begin by talking about solutions or positions. The trouble with solving a problem by focusing first on positions is that people’s positions are often in conflict even when their interests are compatible.”[2]

We used this rule when we wanted to distribute the tasks. As Therese and Yugal are interested in petroleum related subjects they wanted to work on the technical part. David preferred to work on technical part as well, because that is more related to his knowledge and interest, while Ehsan’s and Pratima’s interest was closer to the process part. We distributed the task based on our interest and found that our work was very effective and enjoyable.

Another situation where we used this rule was when we wanted to choose a deadline for our work. We accepted that all of us were so busy especially at the end of semester, when it was time to finalize the reports. We therefore discussed our schedules to try to find a good date for when we should finish our work. So we could manage our time and finish our task before deadline.

6. Combine advocacy and inquiry

“Combining advocacy and inquiry means expressing your point of view, which includes sharing your reasoning and intent and then inviting others to inquire into your comments.”[2]

This rule has also been used in our group during this course; Therese has always asked us if we agreed with her or not after she presented her ideas. David has always wanted to discuss every issue before making a decision, and he has come up with comments to the entire member's work and tried to be involved in all stages of the project. His comments encouraged others to go through a discussion.

All of us have uploaded our work on it's learning and asked the others to give their feedback to improve our work.

“Combining advocacy and inquiry accomplishes several goals. First, it shifts a meeting from a series of monologues to a focused conversation. Second, it creates conditions for learning.”[2]

As we used this rule during our work, we have gotten many new ideas on how to improve our work. Nobody felt shy about giving comments, even if they were a little far fetched. As our task in part B mainly concerns geological and geophysical uncertainties in the Gullfaks Sør field and how to get around those, we have all learned a lot about geophysics and of course teamwork along the way. We have all been involved in one way or another and our meeting have not been boring and we have enjoyed working in our team.

7. Jointly design next steps and ways to test disagreements

“This means deciding with others what topics to discuss, when to discuss them, how to discuss them, and when to switch topics, rather than making a decision privately and unilaterally. In general jointly designing next steps means (1) advocating your point of view about how you want to proceed, including your interests, relevant information, reasoning , and intent; (2) inquiring about how others may see it differently; and (3) jointly crafting a way to proceed that takes into account group members’ interest, relevant information, reasoning and intent.” [2]

When we wanted to analyse the economics for part A of the project, there were two approaches. Ehsan and Pratima suggested that we should find the best and the worst situation for both drilling platform and subsea facilities. On the other hand David and Yugal believed in spider chart analysis. Everybody referred to his/her knowledge and experience. After some discussion we decided to do both, in order to take all the information into account.

We decided in the first session that we should try to finish our work on Wednesdays. Therefore we had to manage our time in the group, in order to finish everything. On our meetings we focused on the topics that we had decided to discuss earlier, and by controlling the next step of our discussion we did not waste our time. As a result, we used minimum extra time to finish our work.

8. Discuss undiscussable issues

“Undiscussable issues are those that are relevant to the group’s task but the group members believe that they cannot openly discuss them in the group without some negative consequences. By raising these issues with the assumption first that you may be missing things, second that you may be contributing to the problem, and third that others are trying to act with integrity, you demonstrate your compassion for others and yourself.”[2]

We tried to speak about these kinds of issues when we had lunch. We found that if we speak about the problems which we had with each other openly, all of us could go through this issue and help solving the problem. Ehsan had problems at first to talk about undiscussable issues because he found it impolite, but when he started to talk about them he felt better and he involved in group working more comfortable. In these discussions we solved all the problems which we had related to this category, as a result we were efficient when we focused on our task.

David wrote about using this rule in our group “Strong desires within our group to express our opinion. Being more open, is one thing that I have learned during the teamwork.”

9. Use a decision-making rule that generates the level of commitment needed

This rule is explained under the decision making part.

Because we did not use the ground rules at all times, there were some conflicts in the group. They have been touched upon earlier in this report, but will be highlighted in this section:

Misunderstanding between Ehsan and Therese about the interest in participating in the Gullfaks village

In the second week, when we wanted to choose topic for the part B of the project, we had a conflict in our team. Ehsan said that it did not matter to him which task to choose, because he was not familiar with the field anyway. Therese thought that Ehsan was not eager to be in this village and reminded him that a lot of Norwegian students wanted to participate in this village but they were not accepted because it was full. Ehsan got angry because he thought that Therese did not get his point and found her words rude.

Therese wrote in her log book “we spent a lot of time before we managed to get structured and found a way to vote. I think that I had gotten a little irritated because things took so long and then when we discussed, Ehsan didn't contribute with anything. Yugal and I tried first to explain that it is necessary for Ehsan to say something because it would be nice to choose a task where everybody could contribute with something. Ehsan said that he didn't care about any of the tasks, that nothing was interesting for him. He had just picked this village because there weren't many to choose from and this seemed like the least boring of the alternatives. I got mad and told him that he should be happy for having the opportunity, because there are many Norwegians who are interested in the topic of the Gullfaks village and who would like to participate.” Ehsan wrote in his log “This course is so far from what I thought before. I want to learn something about teamwork but it seems that this is a completely technical course. I hope it will be better in the future.” In this case, we did not use some of the rules of Schwarz, we should have used ground rule 1:

- Test assumption and inferences.

Therese observed Ehsan's behaviour and labelled that Ehsan was not eager to be in this village. That was because Ehsan could not explain his reason very well. Also, David thought the same as Therese. He wrote about this conflict “I was a bit shocked in my first week in the team (2nd week of the village), when we had a non teamwork related conflict, which was when Ehsan mentioned that he doesn't want to be in this village. At that time, Therese and I confronted quite strongly with him. In my opinion this is a non teamwork related problem, which is an individual motivational problem, but can make a huge impact on achieving the group's goal.” Therese did not test her infer and acted based on her assumptions and what she understood of Ehsan's explanation. Ehsan thought that her behaviour was rude. Ehsan should have used the following ground rules:

- Use specific examples and agree on what important words mean.
- Explain your reasoning and intent.
- Focus on interests, not positions.

He thought that the most important thing in this village was learning about teamwork, and the technical part was far from his background. As there were not any villages close to his background, he tried to choose the one that could be a little bit related to his field of study. He

realised when he started in the Gullfaks village that it was still very far from what he was learning about. He did not explain his reason well, and since we had problems with understanding each others English, he had to use some examples to clarify his idea. Moreover, in this situation we focused on this village as a position not on our interests which encouraged us to choose this course.

Ehsan and Therese argues when Ehsan wanted to leave after lunch.

In the fourth week Ehsan told the team members that he wanted to leave after lunch. He wrote in his log book “I had to leave the group this afternoon. When I told the others they accepted it easily, except Therese. I found it funny and I could not understand why. She asked me why I wanted to leave the group. The reason was that my friend was sick and I had to take care of her. But I did not tell Therese why and preferred to stay. I can not understand why she asked me that question. She wants to go on a trip for three weeks and asked me if the reason for why I was leaving was to watch TV. It was really funny and I got angry.” Therese wrote “In one of the breaks Ehsan came over and told me that he had to leave after lunch. I asked him why and he got mad and said that he didn't want to tell me. Then I said; well, if you are just going home watch TV I don't think that you should go. He didn't like that I said that and just said, then I won't go. So it isn't that important then? I said. He stayed, but at lunch he brought it up again and asked me why I wanted to know. It was non of my business. The others backed me up and said that I just asked in a friendly manner. And that it is natural to ask that question, especially if you are in a group. I agreed that he didn't have to tell me the reason, because in the team agreement we have written that we should inform the team of our absence, but it is not written that we should specify why we are gone. The whole discussion was based on him not understanding why I wanted to ask about his personal reason, while I just asked out of a friendly manner. Not because I wanted to force him to tell me. “

We had this conflict because we did not use the following rule:

- Explain your reasoning and intent.

Ehsan's friend was sick and he wanted to go home to take care of her. When Therese asked him why he wanted to go, he did not explain. Therese guessed that he wanted to leave because he didn't want to work with the group. So, she said “If you want to go for watching television, you cannot go.” Ehsan felt sad because of this sentence but he did not explain his reason to clarify for everyone. David wrote about this conflict in his log “Today, Ehsan was

asking for permission to leave early. I mentioned to him to ask Therese as our leader (as per our agreed cooperation agreement). And there was a small conflict afterwards, only because Therese was asking about 'why'. I see from this experiences that the conflicts are more to the understanding of group's interest, in which should be higher than individual's interests."

- Combine advocacy and inquiry.

Therese could ask him about his reason in a different way. She could explain to him why it was not good to leave the group during the time set for working on our project and after that she could asked him about his idea.

- Test assumption and inferences.

Ehsan thought that Therese was confused by the definition of a group leader. Ehsan felt that by Therese's question, she wanted to control the group. He did not test his assumption and based on that, he decided not to explain to her because he did not accept this role for group leader.

- Discuss undiscussable issues.

After that, Ehsan's feeling about Therese was not good. It influenced our work because he was not so eager to work. He did not speak to her because he thought that it had negative consequences.

Unclear expectation from David about reservoir management plan

When we decided to get familiar with the contents of the reservoir management plan, David suggested that everyone should write the most important points of his/her part and upload it on its learning. As it was not clear for Ehsan and Pratima, they did not do that. Ehsan thought he had to write the definition of the words which were not clear to the others and then present the important points later on. David wanted all to just write the key points and not present them. When we realised that there had been some confusion on what to do, we tried to clarify everything by explaining the meaning of our words and use examples when making a task for all group members to complete. That helped us reducing the potential conflicts in the group as we all knew what to do and what was expected by us. For solving this kind of problem we refer to third rule of Schwartz ground rules. When a member unintentionally agrees or

disagrees with another, it is often because the same word means different things to them. We had this conflict because we did not use these rules:

- Use specific examples and agree on what important words mean.
- Explain your reasoning and intent.
- Focus on interests, not positions.

In this situation David did not use examples to clarify his point and therefore Ehsan did not understand David's point clearly. Moreover, we did not focus on our interests and David did not explain his reason for reading management plan. It therefore did not seem useful for Pratima, and she did not do it.

David wrote about this situation "when we agreed to divide the work on reading the 'Gullfaks reservoir management plan', some of the members did not deliver. Due to the reason of not having interest, and that the decision wasn't very clear."

3.5. Information Sharing

Theoretical rules used in order to improve effective information sharing are as given below:

Guidelines 2 for Creating Effective Groups: Establish two-way communication within which group members communicate their ideas and feelings accurately and clearly. [1]

Ground rule 2: Share all relevant information. [2]

Ground rule 4: Explain your reasoning and intent. [2]

Ground rule 8: Discuss undiscussable issues. [2]

Our team performance in communication and information sharing has consistently been good. In order to have effective information sharing process in the team, we established a project in it's learning and everybody utilized it's learning effectively. Also, we have had very formal relationships with one another. We have not called each other on mobile phones and have not used personal emails for information sharing. Hence we used its learning as the only means of information sharing. So, because of our formal relationship we were compelled to utilize it's learning effectively and we had all the data effectively stored at one place.

However we encountered a misunderstanding between Pratima and Ehsan because of ineffective information sharing and also because of not using ground rule number 2.

Pratima and Ehsan were supposed to do the economic analysis in part A. Once the work was done Pratima agreed on posting it on 'it's learning'. She had a few doubts about parts of the work and she did not clarify that with Ehsan. The next day she was discussing her doubts with David and he had different assumptions about the economic analysis part of the project. David and Pratima ended up working from the very beginning and developed a slightly different model compared to the one Pratima and Ehsan had previously made.

After working with David, she was convinced that their work was better and posted it on it's learning. She felt uncomfortable telling Ehsan what she had done and as we analysed the situation we understood that ground rules 2 and 8 were violated. As a result, Ehsan felt left out of the group and felt that his work was neglected though he had put a lot of effort into it. Ehsan expressed his disappointment strongly and this incidence also led to an argument between Therese and Ehsan when Therese was also unaware of the whole situation. David was also slightly uncomfortable about the whole issue. Hence this lack of information sharing between Pratima and Ehsan created confusion and tension in all the group members. The issue was solved by talking about it openly, where we explained and clarified our reasoning and intent of doing the economics over again.

Ehsan emailed an apology to the rest of the group for his reaction. Pratima and Ehsan could ease the situation by openly taking about the situation and the rest of the team decided to help Ehsan feel more comfortable with teamwork. Hence as a positive change, Ehsan and Pratima again agreed to work together on the process report. Pratima was slightly apprehensive about working with Ehsan again because of the previous uncomfortable situation. Second time, information sharing between Pratima and Ehsan was much better because of the theoretical knowledge on teamwork and also because Guidelines for Effective Groups and Ground rules were understood and implemented quite well.

4. Cooperation agreements

We agreed on the second revision of the cooperation agreement. In the beginning of the course we made a cooperation agreement that was a little hard to follow and it did not take into consideration any of the ground rules by awareness. After a few weeks we revised the

agreement and made the points better and more related to theory. We referred to the ground rules of Schwarz in the second revision.

The second rule says that sharing relevant information ensures that members have a common base of information on which to make an informed choice and generate commitment. This rule is considered in the fourth section, called terms and conditions. As our backgrounds were different, and in some cases are far from petroleum engineering and geophysics, we found that it was necessary to get basic knowledge about the project. We therefore gave each other some basic introductions to the themes that were new to the others. The technical part was taught by Yugal, Therese and David, while the material for the process report was taught to the others by Pratima and Ehsan.

The fifth point of terms and conditions got changed by adding the sentence: "All the members should make sure that tasks are clear for everyone." That was because we wanted to include the ground rules and because we understood that we needed it. Previously, when we had not made sure that everybody understood the tasks fully, we had gotten conflicts in the group.

Regarding the eighth rule, undiscussable issues are issues that are relevant to group's task but the group members believe that they cannot discuss them openly in the group without negative consequences. By discussing them, you share relevant but difficult information with team members so that they can make a free and informed choice about whether to change their behaviour. In the cooperation agreement, point 7 in the section concerning goals and point 3 in the section concerning terms and conditions, Ehsan disagreed and wrote in his log "We must write about each other openly. It is difficult for me, maybe it is rude, I do not want to bother the others." Ehsan could not speak to the rest about this because of his thoughts at first. But after the group got familiar with the ground rules, he wrote that "This rule is great, now I can speak to those I have problems with easily, and I feel better and I enjoy a lot to work with others."

Another rule which we included in our cooperation agreement is rule 9. We considered two methods of decision making for our work. As it is clear in point nine of terms and conditions, at first we tried to decide by the consensus method. We wrote that if we could not come to an agreement, then we would use the democratic method.

4.1. Cooperation agreement, Second revision

Goals

- 1) To learn about the Gullfaks sør field, as well as group work.
- 2) Get the best grade
- 3) Manage to get a theoretical 10% IOR for the Gullfaks sør field by completing the tasks.
- 4)) Strict focus on the task at hand.
- 5)) To be efficient and try to finish all the work on Wednesdays.
- 6)) Have fun in the group
- 7)) Maintain open discussion and feedbacks all the time

Practical agreement

- 1) Group coordinator: Therese Jørgensen
- 2) Communication plan:
 - i. External communication (to Statoil and NTNU advisors) will be through group coordinator
 - ii. It's learning project web page as one of the tools for information sharing / discussion between group members
 - iii. Absent or in-ability to meet the group and reasons for this, should be communicated to group coordinator or through other group members

Terms and conditions

- 1) In case of lack of commitment (absenteeism without prior information, not finishing the agreed task and not informing about it, de motivating the team) the person will be left out of the report.
- 2) All group members should write log regularly and be open and frank with opinions.
- 3) All group members should highlight on other group member's performance, work, development and contribution, to get the best and efficient results without any fuzz.
- 4) Equal effort from all the group members when it comes to sharing information about basic knowledge in the field of geology and petroleum and other knowledge that are

necessary for this project . Team members to whom this information is new, should do their best to understand .All the members should share with the group any type of skills and knowledge that would be relevant for the group work.

- 5) All decisions must be agreed and committed by all the members. All the members should be sure that tasks are clear for everyone.
- 6) In terms of disagreements, at first, all the members must try to find a solution. Finally, if all the efforts do not have any result, they can make a decision by voting.
- 7) All the members must try to make a good atmosphere and encourage each other to do the best.

5. Facilitation

Team has utilised the support from students' assistants and from the lecturers very well. Once the work was divided, team members who were responsible for technical part concentrated their communication with lecturer and with the companies. Team members who are responsible for process report took guidance from student assistants. Therese, Yugal and Devid spent quite a lot of time with technical faculty at the university and they maintained regular interactions with the company to acquire the data required. On the other hand Pratima and Ehsan were very effective in taking the feedback from student assistants and implement them in the teamwork and the report. In the first feedback from the student assistant, we were appreciated because while discussion the issues we shared clear examples. Hence we used that feedback and always used examples while conveying the messages. Student assistant could sense that we had some issues in the team and she expresses that we have room to improve. As a result our second discussion with the student assistant was very effective. According to student assistant, information flow in the team was spread across all members and we showed tremendous team development.

6. Tests

6.1. LIFO Test

The LIFO test was a good opportunity for us to understand each others behavioural pattern and increase our team productivity. The Result of this test helped us to identify and capitalize on the unique mix of strengths in the group. We could all find out about our own contribution

in the group and work more effectively with the other group members whose approaches were different.

Scores of the test

		Ehsan	David	Pratima	Therese	Yugal
Favourable Condition	SG	27	24	28	22	23
	CT	22	25	18	30	31
	CH	21	26	25	18	16
	AD	20	15	19	20	20
Unfavourable Condition	SG	17	19	19	15	17
	CT	22	25	25	26	20
	CH	24	26	26	28	31
	AD	27	20	20	21	22

Supporting giving (SG)

In our group we had three members with supporting giving characteristics under favourable conditions. Ehsan, Pratima and David had SG characteristics according to LIFO test. One of the main characteristics of those who are supporting giving is cooperative, dedicated, pursuing excellence, modest, responsive. All three thought that these characteristics suited them, and they displayed these characteristics in many different situations in the team work. For example, when Pratima called David on a weekend to clarify a few doubts in the Economics part, David agreed to meet her and they worked on it from scratch and finished it. Though it was not David's part and he had already worked quite a lot on other parts of the project, he was extremely helpful and showed all supporting giving characteristics. It was surprising to see that Ehsan also scored highest on the supporting giving characteristics under normal condition. Ehsan felt that the results from the test were good and that supporting giving characterize him well as he always act in that manner with his friends from Iran. His behaviour changed towards the rest of the team members after he got to work on something that he was comfortable with and that interested him more, and we could understand that supporting giving really suits his qualities. When Pratima changed the structure of the report several times, he cooperated with her really well. Ehsan wrote in this log book that since he is not a native speaker of English, it is difficult for him to convey his thoughts. So he used a high voice and everyone in the team thought that he is very aggressive by nature. Pratima was

quite cooperative throughout the project. Hence this test made us concentrate on our good qualities.

Under unfavourable conditions all the team members lacked supporting giving qualities. However after a few uncomfortable episodes in the team, we decided that we should listen to each other more carefully and understand the others' view point. Hence we did not have any problematic scenarios under stressing conditions after that.

Controlling taking (CT)

Characteristics of the controlling taking personality type are, direct, quick to act, variety, novelty, enjoy the challenge of difficult situation and people, fast pace and confident. Therese, David and Yugal belonged to this category according to the results from the LIFO test. Therese thought that, though this test can not tell the whole truth, it certainly showed some patterns in her behaviour. She clearly exhibited these characteristics in a way that helped the group activity. Her stress on fast pace and sense of urgency was quite helpful when the group was inefficient. Also whenever she had conflicts with Ehsan, she confronted openly and she thought it was a good thing to have conflicts because it would help the group's development. It was also one of the qualities of the controlling takers. Controlling takers like novelty and new projects. This quality was very evident in Yugal. He always came up with new ideas in the project and wanted to try something different. While making the group picture, Yugal came up with a completely new idea. Instead of standing in a single line with boring smile, we made TAKK with our postures for the photo. When we tried this, we enjoyed taking group picture in a new fashion and laughed together.

Conserving holding (CH)

Conserving holding people are logical, analytical, studying people carefully, methodical and practical. Under unfavourable conditions four of the team members possessed this quality and all of them exhibited this quality under unfavorable condition. For example, whenever we had conflicts between any two, all the team members were completely logical and analytical about the situation. Hence did not jump into a conclusion. It was good for the team because we were analytical with our approach towards conflicts and did not take it personally.

Adapting dealing (AD)

Characteristics of the adapting dealing people are, adaptable, sensitive, flexible, negotiating, sociable and quick to change. Only Ehsan scored high in AD under unfavorable condition and he displayed that quality too. Whenever he had conflicts with other team members, he was the one to change quickly and this helped us to resolve the conflict really fast and not struggle with it for a longer time than necessary. Though he was disappointed and angry in certain situations, he was empathetic and sociable after the negotiation.

Thus all the team members displayed all the characteristics in favourable and unfavourable conditions, we mainly concentrated on the strengths of each personality type and displayed those qualities.[3]

6.2. Teamwork Evaluation test

A teamwork evaluation test is a qualitative measurement of our team performance. We have identified five elements which are very important for a team to perform well. Those elements are, involvement and goal formation, decision making, distribution of task and planning, handling of difficult and uncomfortable situations and information sharing.

All of these elements are graded from 1 to 4. Rating 1 means team performance was bad and rating 4 means that team performance was very good. Description of each rating is given in the respective column. To get a general view of the team performance, this qualitative table is linked to the Bruce Tuckman's Model[4]. The model considers five stages for group development. He recognizes the distinct phases a team goes through, and suggests that a team should experience all the stages before it achieves maximum effectiveness. These stages are:

Stage1: Forming

“Individual behaviour is driven by a desire to be accepted by the others, and avoid controversy or conflict. Serious issues and feelings are avoided, and people focus on being busy with routines, such as team organisation, who does what, when to meet, etc. But individuals are also gathering information and impressions - about each other, and about the scope of the task and how to approach it. This is a comfortable stage to be in, but the avoidance of conflict and threat means that not much actually gets done.”[4]

We experienced this stage in the first day of our teamwork. In that day we spent a lot of time to get to know each other better. The student assistants designed some games and after working with these and getting general information at school we went to a place to a go-cart and bowling place. There were no conflicts and we supported each other a lot and ended up winning the go-cart race. Ehsan wrote about that day in his log book “When we were go-carting, after all had had one go of driving, there was one round left. I was eager to drive, but Therese wanted too. I let her drive because I wanted to show that success for our team was more important.” In this stage we did not have important task to do, so there was not real cooperation in team.

Stage2: Storming

“Individuals in the group can only remain nice to each other for so long, as important issues start to be addressed. Some people's patience will break early, and minor confrontations will arise that are quickly dealt with or glossed over. These may relate to the work of the group itself, or to roles and responsibilities within the group. Some will observe that it's good to be getting into the real issues, whilst others will wish to remain in the comfort and security of stage 1. Depending on the culture of the organisation and individuals, the conflict will be more or less suppressed, but it'll be there, under the surface. To deal with the conflict, individuals may feel they are winning or losing battles, and will look for structural clarity and rules to prevent the conflict persisting.”[4]

In this stage, when we started to work on part A of the project, we had some disagreements when choosing the topic. As we had some problems understanding each other, and we did not use any rules to direct us in a way that could help us solving conflicts. All of the conflicts explained earlier in this report belong to this stage.

Stage3: Norming

“As Stage 2 evolves, the "rules of engagement" for the group become established, and the scope of the group's tasks or responsibilities are clear and agreed. Having had their arguments, they now understand each other better, and can appreciate each other's skills and experience. Individuals listen to each other, appreciate and support each other, and are prepared to change pre-conceived views: they feel they're part of a cohesive, effective group. However, individuals have had to work hard to attain this stage, and may resist any pressure

to change - especially from the outside - for fear that the group will break up, or revert to a storm.”[4]

After we decided to distribute our work, Ehsan and Pratima were responsible for the process report and Yugal, David, and Therese were responsible for the technical part. Ehsan made a presentation about ground rules. After that, we had rules to act according to. These rules helped us reducing the conflicts and improve our work. We knew each other better and we were familiar with each others interest. All of us had one goal and that was to do our best. We supported each other.

Stage4: Performing

“Not all groups reach this stage, characterised by a state of interdependence and flexibility. Everyone knows each other well enough to be able to work together, and trusts each other enough to allow independent activity. Roles and responsibilities change according to need in an almost seamless way. Group identity, loyalty and morale are all high, and everyone is equally task-orientated and people-orientated. This high degree of comfort means that all the energy of the group can be directed towards the task(s) in hand.”[4]

In this stage, we worked efficiently. All of us worked on the tasks which we liked. We did not have any conflicts in this stage. All of us were involved in the process of making decisions. In most situations we used the consensus method for deciding. We reached our goals easily.

Stage5: Adjourning

“This is about completion and disengagement, both from the tasks and the group members. Individuals will be proud of having achieved much and glad to have been part of such an enjoyable group. They need to recognise what they've done, and consciously move on. Some authors describe stage 5 as "Deforming and Mourning", recognising the sense of loss felt by group members.”

We think that our results are very good. And all of us have learned a lot about teamwork. We found our problems when it came to working with other people with different ideas. We think that we were successful to solve them. Finally, all of us are satisfied.

Our grades and plots which show improvement of our work are coming in next pages:

Involvement and goal definition									
1	2	3	4	Members' Grade	Forming	Storming	Norming	Performing	Adjourning
No defined goal and No understanding of the goal	Definition of final goal but no intermediate goals	Definition of final and intermediate goal with partial understanding	Clearly define final and intermediate goal	David	2	2	3	3	3
No involvement due to lack of subject knowledge	No understanding of the goal by all team members	Involvement with sufficient understanding of the subjects and concepts	Involvement due to good understanding of the subject and concepts	Therese	2	2	4	4	4
No involvement due to lack of self motivation and motivation by team members	Partial involvement due to peer pressure but no understanding of the subjects	Involvement with little self motivation and motivation by team members	Self motivation among all team members and team members motivation one another	Yugal	2	2	3	3	4
	involvement without motivation			Pratima	2	2	3	4	4
Not meeting deadlins due to lack of commitment to work	Las minute completion of work and no feedback and correction	Completion of work on time but no feed back and correction	Completion of work on time and effective feedback and correction of the work	Ehsan	2	2	3	4	4
				Avarage	2	2	3	3.4	3.8

Table1: Involvement and goal definition grades

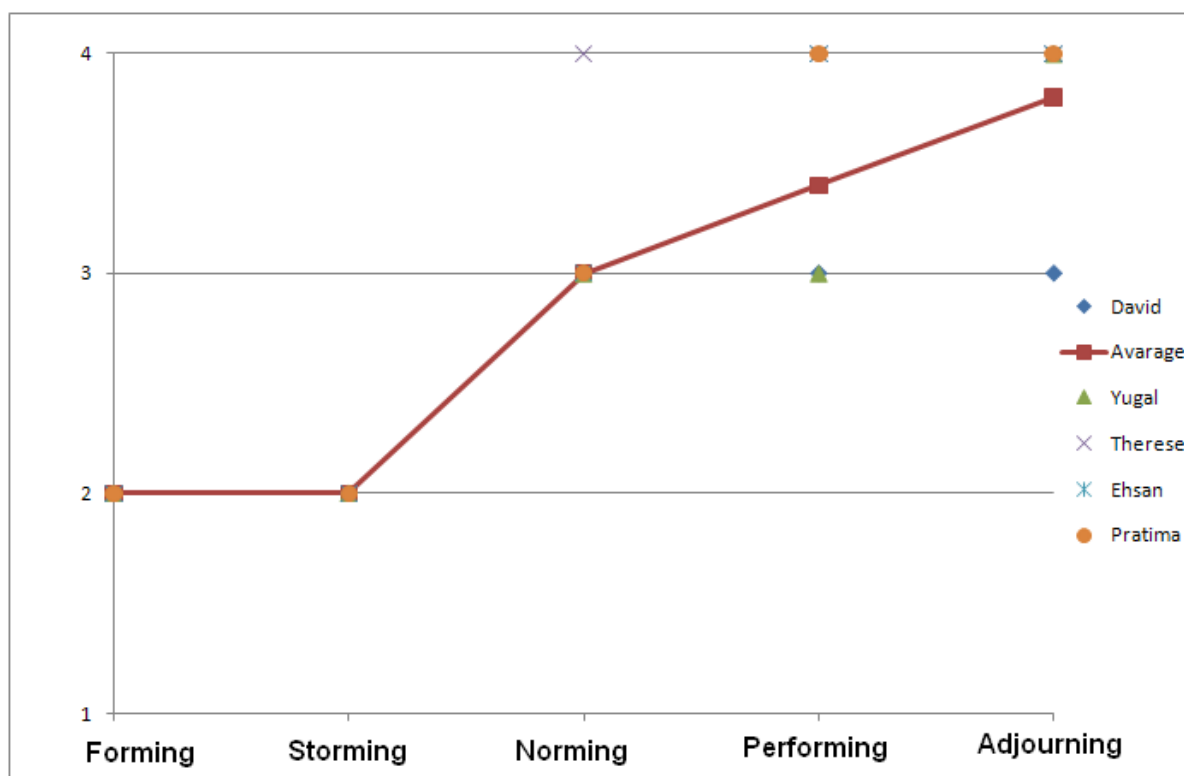


Figure1: Involvement and goal definition improvement

Planning process									
1	2	3	4	Members' Grade	Forming	Storming	Norming	Performing	Adjourning
No planning of roles and responsibility	Assumed goals and responsibility without mutual agreement	Planning of roles and responsibility without considering background and interest of the team members	Clear planning of roles and responsibility	David	2	2	2	3	3
Not clear planning of sub tasks		Division of subtask without strict deadline	Precise division of subtask and strict deadline to finish it	Therese	2	3	4	4	4
No planning of the structure of the report	Division of task without deadline to complete it	Unclear structure of the report	Clear planning of the structure of the report	Yugal	2	2	3	4	4
No planning of the communication means and information exchange		Planning of communication means	clear planning of communication means	Pratima	3	3	4	4	4
No plan for solving uncomfortable situation	Informal plan for solving uncmfortable situation	Plan to solve uncomfortable situation without theoretical concepts application	Plans for handling uncomfortable situation with theoretical concepts	Ehsan	2	3	4	4	4
				Avarage	2.2	2.6	3.4	3.8	3.8

Table2: Planning Process grades

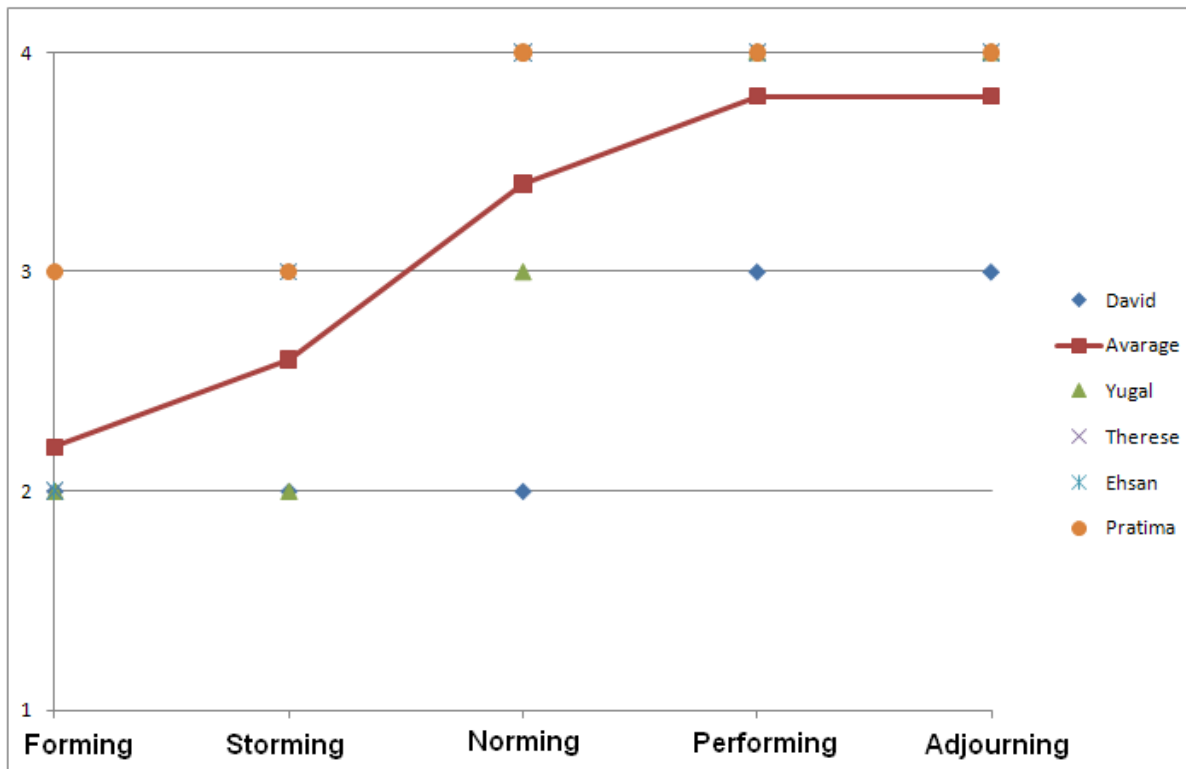


Figure2: Planning process improvement

Communication									
1	2	3	4	Members' Grade	Forming	Storming	Norming	Performing	Adjourning
No communication among team members about the task	Communication among few members but not as a whole team	Sufficient communication regarding task only	Effective communication among team members	David	2	2	3	3	3
Not listening to one another and not understanding the view of one another	Listening by few members and no understanding	An effort to listen to one another without much understanding	Listening to one another carefully and understanding other's perspective	Therese	2	1	3	4	4
No establishment of communication means. Ex. It's learning project group	Creating communication techniques but not utilizing it	Creating communication technique and utilizing by few members	Establishment of communication means and effective usage	Yugal	2	2	3	3	4
Not sharing relevant information and delaying the communication	Sharing not complete information	Sharing relevant information but delayed communication	Effective sharing of relevant information and on time information sharing	Pratima	2	3	4	4	4
				Ehsan	2	2	3	4	4
				Average	2	2	3.2	3.6	3.8

Table 3: Communication grades

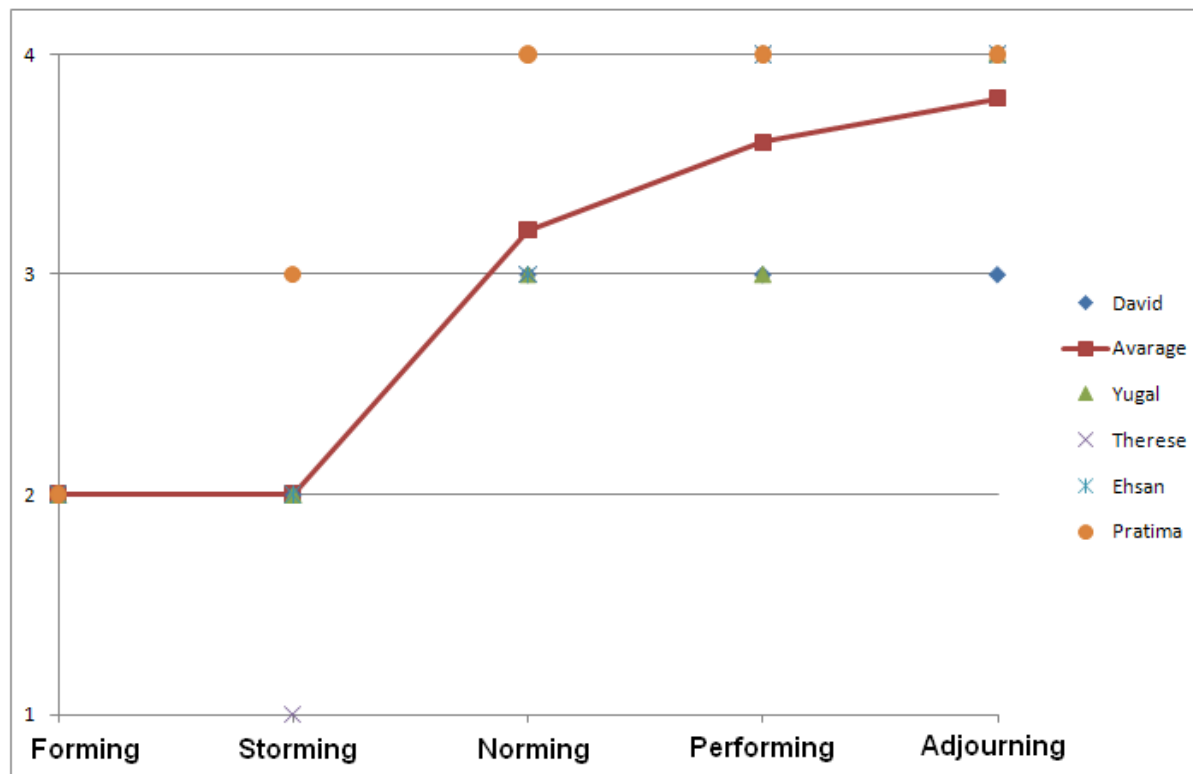


Figure3: communication improvement

Decision Making									
1	2	3	4	Members' Grade	Forming	Storming	Norming	Performing	Adjourning
No valid choices to make a decision	Having few choices but not specific for the team work and team task	Having very few choices specific for the team work and team task	Having choices which are specific to the group and task	David	2	2	2	3	3
No involvement of team members in decision making process	Involvement of only few members with rest being passive	Involvement of team members without contribution	Involvement and contribution of all the team members in decision making process	Therese	3	2	4	4	4
No application of ground rules and no valid technique to make decision	No application of ground rules but using very general techniques to make a decision	Using techniques like voting without referring to ground rules	Application of ground rules to make decision making process and other techniques	Yugal	1	3	4	4	4
Not arriving at decision and having many confusions	Arriving at unclear decision	Arriving at decision without agreement	Arriving at timely decision with all the team members consent	Pratima	3	3	4	4	4
Not adhering to decision and changing the decision often	Adhering to decision with the possibility of immediate changes	Adhering to decision	Adhering to the decision made	Ehsan	3	3	4	4	4
				Avarage	2.4	2.6	3.6	3.8	3.8

Table 4: Decision making grades

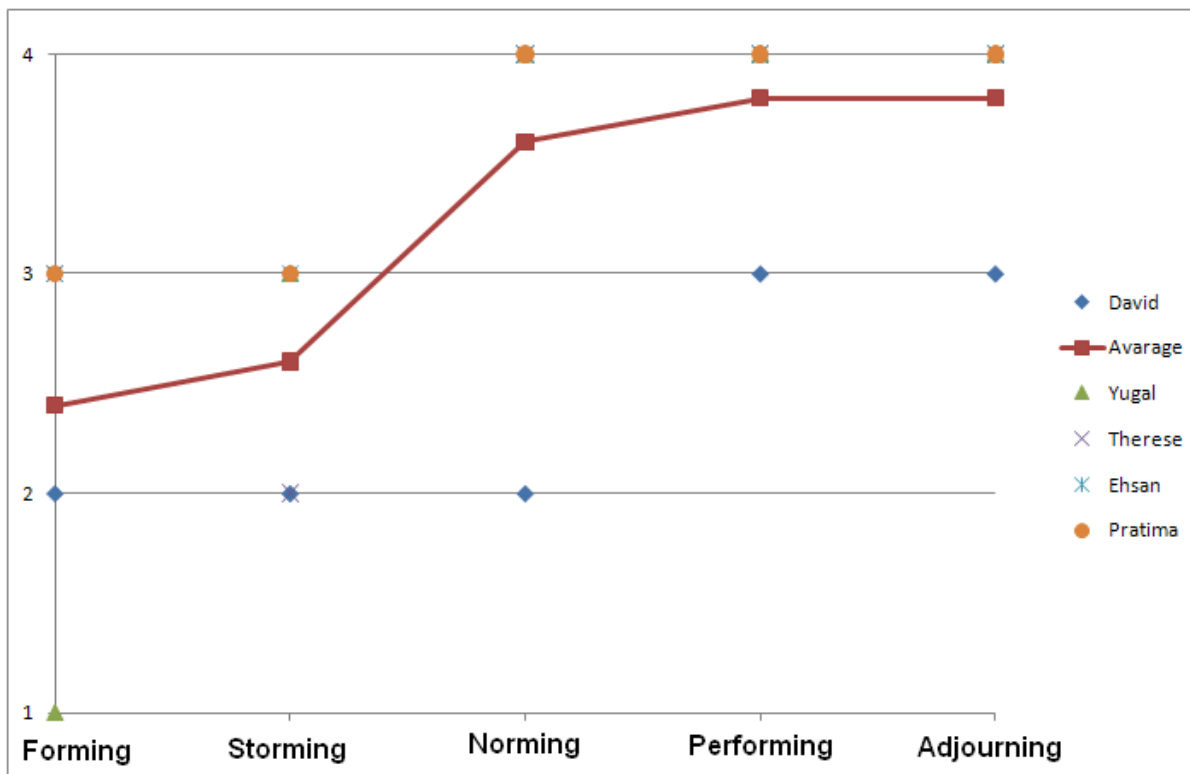


Figure 4: Decision making improvement

Cooperation in team									
1	2	3	4	Members' Grade	Forming	Storming	Norming	Performing	Adjourning
Absolutely no cooperation in the team.	Cooperation among few members but not among all the team members.	Sufficient cooperation for the delivery of team task.	Extremely good cooperation in the team	David	2	2	3	3	4
Not solving the problem of noncooperation in the team.	Some efforts for understanding the problem but not clear understanding.	Sufficient efforts for understanding of the problem but partial understanding.	Clear understanding of the reason for the cooperation	Therese	2	2	3	3	4
No efforts for understanding the problem of noncooperation in the team	Temporarily solving the problem concerning non cooperation issue.	Satisfactorily problem solving	Effectively resolving noncooperation issue	Yugal	2	2	3	3	4
No application of guidelines and other techniques to increase the cooperation in the team.	No knowledge of guidelines for better cooperation	Partial application of guidelines and techniques for the application to increase the cooperation	Effective application of guidelines and techniques to increase the cooperation	Pratima	2	3	4	4	4
				Ehsan	3	3	4	4	4
				Avarage	2.2	2.4	3.4	3.4	4

Table 5: Cooperation in team grades

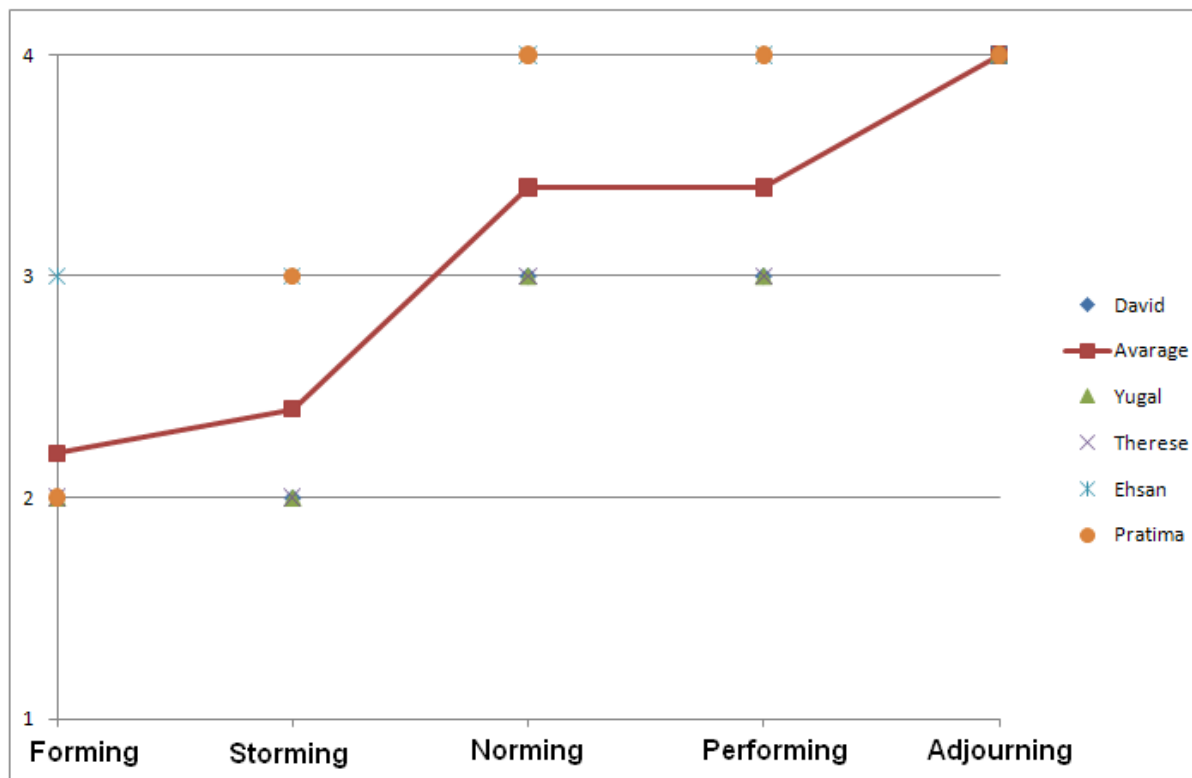


Figure5: Cooperation in team improvement

As figure 5 shows, our cooperation in team was improved during the semester. In this improvement some parameters had important roles:

1. We got familiar with each other's behaviours and cultures during the semester.
2. We used theory to solve our problems, which we had in team working.
3. We distributed the task based on our interests.

7. Conclusion

To conclude, this report shows how we worked as a team with the differences and conflicts. Discussion about conflicts shows that how well we utilised conflicts as an improvement tool and applied theory to solve the problems.

Each and every team member learnt more about team work and all were satisfied to be a part of the team. Tremendous change from not believing in the teamwork to loving the teamwork was very evident. Conflicts have been discussed openly and all the team members' frank opinions are given in the report to show our conviction in the team work. Report shows the integration of differences in the team, common goal, conflicts, solutions, scientific approach towards teamwork and the development in the team.

8. References

- [1] “Group Dynamics”, Johnson & Johnson, 2006, EiT compendium.**
- [2] “Ground Rules for Effective Group”, Schwarz, 2002, EiT compendium.**
- [3]“LIFO Training, Productivity Workbook”, Stuart Atkins, Allen Katcher, and Eric Dahl, version2, Business Consultants Network,Los Angeles,California.**
- [4] <http://www.chimaeraconsulting.com/tuckman.htm>**