Experts in Team 2010

Gullfaks Village

Process Report

Group 1

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Foreword

This is the Process Report for TPG4851-Experts in Team (EiT), Gullfaks Village Spring 2010. EiT is an obligatory course for all Master students in NTNU. This report analyzes how the group functioned as a team.

The group would like to thank the following people for their support and guidance. The village supervisors: Jon Kleppe and Jan Ivar Jensen, to SINTEF Research Scientist Jan-Åge Stensen from division of Petroleum Research, Statoil project supervisors: Petter Eltvik and Karl Sigurd Årland, the teaching assistants: Ida Emilia Sareneva Aasen and Daniel Aleksander Solheim.

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1   Introduction

Experts in Team (EiT) is an obligatory course for master students in NTNU. EiT gives an emphasis to multidisciplinary teamwork of students. The course is divided into villages. Each village has its own theme, which focuses on the real life issues faced by a public sector or an industry and has around 20-30 students. The village is supervised by a professor/s and two teaching assistants. 5-6 students with different backgrounds are grouped together. Each group has a specified task to work with, and the group members are expected to apply their academic skills and develop their teamwork skills throughout the process.

This course has three goals for each student:

"To acquire an understanding of their own competence and how it may be used for the benefit of the team. To gain experience in the teamwork as a mean to solve an interdisciplinary problem. Finally, to acquire insight from their own behavior and how it influences collaboration in the team."[1]

For this course, two reports should be handed-in: a team process report and a project report. Each report counts for 50% of the final grade. The team process report should describe the group interactions and discuss the improvement of teamwork.

In this report, the experiences of the group will be linked together in order to show how the teamwork had functioned and improved throughout the course.

2   Gullfaks Village

Gullfaks field is an oil- and gas field of Statoil, which started its production in 1986. From that time Statoil had planned 46% oil recovery in the field. But after 20 years, the oil recovery is expected to be 70% due to technology development. Since 2000, NTNU and Statoil agreed to establish a village in Experts in Team. The challenges that are given in this village are to find new solutions to current problems in the Gullfaks field. [2]

In 2010, there were six student groups in Gullfaks Village where each group was composed of 5-6 students. The challenge was to propose measures that could improve oil recovery from Gullfaks Sør field. Statoil presented six possible measures and each group had an opportunity to choose one according to each student group interest. Hence, these measures became the tasks for the student groups. The final decision was made before the trip to Statoil office in Bergen where the groups had the chance to meet their supervisors personally and to discuss their chosen task in details. [3]

2.1   Village Supervisors

Dean of Petroleum Engineering and Applied Geophysics Department Professor Jon Kleppe was the main village supervisor. Research Engineer Jan Ivar Jensen was also involved in organizing the daily activities and has been our software instructor. In the case of software technical problems Knut Backe has been an appreciated help. In order to understand our behavior in the teamwork better, IPT Associate Professor Egil Tjåland arranged the LIFO test.

2.2   Statoil Supervisors

Petter Eltvik and Karl Sigurd Årland became the group's Statoil supervisors. Petter was the main contact person in Statoil and the village had met him before going to Bergen. The group met their supervisors during the Bergen trip. The meeting started with asking questions since the group was able to prepare and research about the task before hand. All the doubts of the members were answered and the task became clear. The group received quite challenging suggestions during the meeting. The group was very satisfied and was feeling equipped to start with the task after the trip. Since then, the group kept in touch with Petter and Karl through e-mail.

2.3   Village Teaching Assistants

Each EiT village had two teaching assistants who carefully followed the process part of the course in each student group. The village had Ida Emilia Sareneva Aasen and Daniel Aleksander Solheim as teaching assistants. A part of their task was to observe the interaction among the group members and to give constructive criticism in order to improve the teamwork. Another part was to provide a set of surveys in order for the group to know each other better, to discuss misunderstandings and to attain a comfortable working atmosphere. They also organized activities that helped the student groups to understand teamwork in practice and theory. These activities also improved the communication in the group. One of their most remarkable activities was the cooperation agreement, which enabled the student groups to follow a set of rules, which enhanced the teamwork efficiency.

2.4   Ground Rules

The Nine Ground Rules of Schwarz [4] were introduced during the 10th village day. These rules helped the village to have effective student groups.

1. Test assumptions 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.

These ground rules served as a diagnostic frame which identified the factors in a group's process, a learning tool for developing group norms which enabled the group to interact better and share responsibility on how to improve the process. In addition, these also guided the behavior of each group member. [4]

The vital role of the ground rules made it easier for the group to communicate, to feel comfortable while working and to trust each other. See chapter 5 and 7.

3 The group
This chapter will discuss the task of the group and will introduce the group members together with their background and expectations.

3.1 Group Tasks
The technical aspect of the course was separated into two parts. The purpose of the first part (Part A) was to obtain knowledge of the Gullfaks Sør Statfjord history and understand the challenges behind improved oil recovery (IOR) in the field. The second part (Part B) was the chosen task from Statoil's six possible measures. The group had chosen a task about the environmental challenges of adding a chemical called BrightWater to the water injection by improved volumetric sweep. The group should review the SFT's list of harmful chemicals since BrightWater is classified as red (dangerous) and make a recommendation for the possible use of this chemical at Gullfaks Sør with the consideration of both environmental challenges and increase oil recovery. BrightWater should be modeled in a simulation program called Eclipse. This should be done by incorporating BrightWater in the water injection simulation of the group 5 or any appropriate water injection model. Hence, the group should cooperate with the group 5. In addition, a discussion about possible improvements in modeling this chemical should be made. [3]

3.2 Group Members
The members of the student groups were already decided before the first EiT meeting. The group was composed of six multicultural master students from 4 different departments. Half of the group came from the Petroleum Department while the other half were from Chemistry Department, Energy & Process Department and Industrial Economics & technology Management Department.

The group members came from five different countries:

➢ Ahsin- **Pakistan**   ➢   Marit & Stian- **Norway**

> ➤ Bashir- **Azerbaijan** ➤ Saeed- **Iran**

> ➤ Rachelle- **Philippines**

Ahsin, Bashir and Saeed came last year 2009 to start their Master Studies while Rachelle had been studying in Norway for almost five years.

Ahsin Nazir, *26 years old*

Background: Bachelor Degree in Chemical Engineering, 1st year Master student in Chemical Engineering

Expertise: Three years working experience as process engineer in fertilizer industry

Expectations:
- To get experience of teamwork
- To work with people from different backgrounds
- To get more knowledge from several courses in one project.
- To meet new people and learn from them
- To learn something about myself
- To make new friends
- To get experience of working with Statoil and on a project which is practical

Bashir Hasanov, *23 years old*

Background: Bachelor Degree in Petroleum Engineering, 1st year Master student in

Petroleum Engineering major in Reservoir Engineering

Expertise: Reservoir Simulation and Enhance Oil Recovery Methods

Expectations:
- To apply my expertise for the project of a multidisciplinary team
- To develop team working skills
- To meet new people from different background
- To work on project that has economic worth and importance for Statoil
- To strengthen my knowledge about fields of Statoil
- To be able integrating the skill of different people onto one important goal
- To challenge myself for personal improvement
- To gain new friends

Lorena Rachelle Ang, *24 years old*

Background: Bachelor Degree in Gas and Energy technology, 1st year Master student in

Natural Gas Technology

Expertise: Process Technology and Thermodynamics

Expectations:
- To have a positive experience working in a group of students with different field of study
- To be able to use and improve my skills both technically and socially
- To be familiar with the upstream process in Gullfaks Sør

Marit Rossing, *24 years old*

Background: 4th year student in Earth science and Petroleum Technology. (Major in Petroleum Geophysics)

Expertise: Seismic interpretation and Geology

Expectations:
- To be challenged – both socially and academically.
- To learn how to make a group function well.
- To be able to use my expertise to contribute in the group work.
- To get to know new people with different backgrounds and get some insight in their field/expertise.
- To learn more about how I function in a diverse group with a challenging assignment.

Saeed Ramazany, *30 years old*

Background: Bachelor Degree in Industrial Engineering. (Major in planning and system analysis), 1st year Master Student in Project Management

Expertise: Four years work experience in Quality and project control

Expectations:
- To be familiar with oil and gas industry.
- To work in a real project with real objectives.
- To work for a well-known company such as Statoil.
- To experience working in a multidisciplinary team.
- To increase my team working skills.

Stian Schjelderup Haaland, *24 years old*

Background: 4th year student in Earth science and Petroleum Technology. (Major in Petroleum Geology and Applied Geophysics)

Expertise: Seismic interpretation and Geology

Expectations:

- Teamwork
- To work with people from different backgrounds
- To use my knowledge from several courses on a project.
- To meet new people and learn from them
- To learn something about myself

4 LIFO Survey

4.1 What is the LIFO survey and what does the different categories of behavior mean?

Life Orientations training, or LIFO, is a program that aims to help the participants to become more productive in their work and to function better in a team.

The LIFO survey contains questions about how a person behaves towards others and reacts in different situations. The result is divided into four categories where the scores range from 9-30. The categories are:

S/G - Supporting/Giving

Strength: Principled, cooperative, dedicated, pursues excellence

Weakness with overuse: Too giving, can easily be taken advantage of

C/T - Controlling/Taking

Strength: Persistent, initiating, urgent, directing

Weakness with overuse: Takes too much control, will not take other group members opinion under consideration.

C/H – Conserving/Holding

Strength: Systematic, analytical, maintaining, tenacious

Weakness with overuse: Things will take too much time and the group will have a hard time to make a decision/come to a conclusion.

A/D – Adapting/Dealing

Strength: Empathetic, tactful, flexible, enthusiastic

Weakness with overuse: Will use too much time to get to know people and to be social.

The first word is the behavior, while the second word describes what happens if a person overuses this behavior. A score below 17 means that a person does not exert the behavior enough or a so-called blindspot, while a score above 30 means overusing the behavior.

A person will receive a score from each category and the total score in each situation (comfortable/uncomfortable) will be 90. From the obtained scores, one can draw a conclusion about how the behavior changes from one situation to another. [9]

4.2   Results of the LIFO survey:
Table 4-1: results from LIFO survey

Comfortable situation	S/G	C/T	C/H	A/D
Marit	27	16	21	26
Saeed	27	17	28	18
Rachelle	26	20	27	17
Bashir	20	28	23	19
Ashin	21	26	23	20
Uncomfortable situation	S/G	C/T	C/H	A/D
Marit	26	12	26	26
Saeed	26	18	23	23
Rachelle	24	17	25	24
Bashir	23	21	20	26
Ashin	26	17	24	23
Changes in behavior				
Marit	1	4	5	0
Saeed	1	1	5	5
Rachelle	2	3	2	7
Bashir	3	7	3	7
Ashin	5	9	1	3
*				
Most Favorable				
Least Favorable				

* Stian was unfortunately not able to attend the LIFO survey
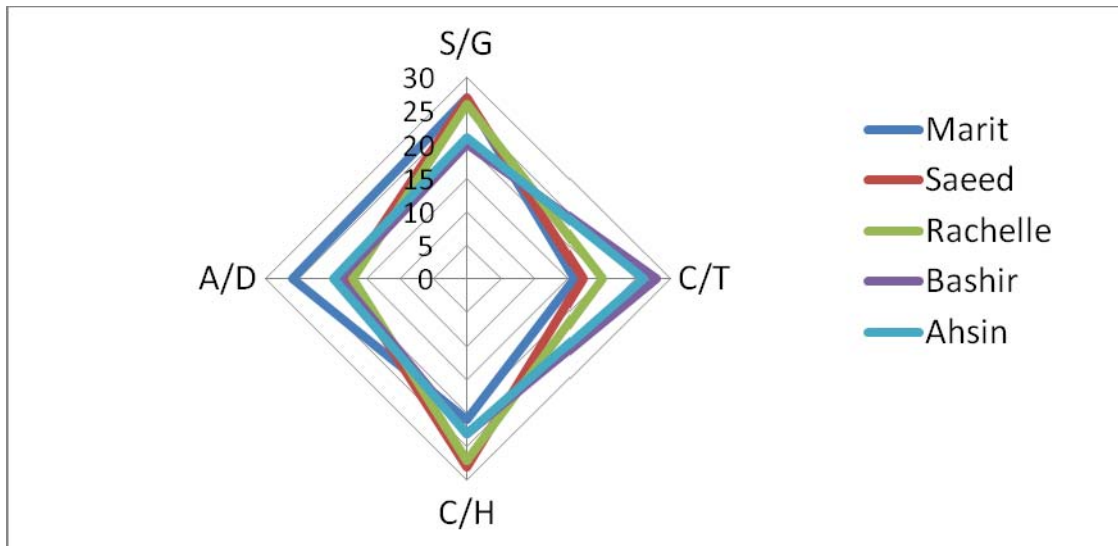
Figure 4-1: Comfortable situation
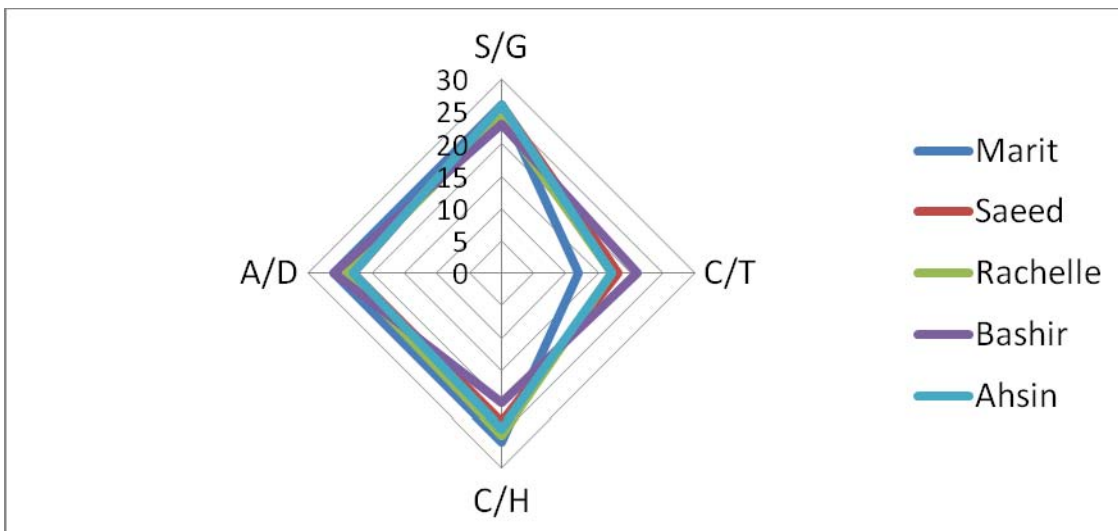
Figure 4-2: Uncomfortable situation

4.3 Discussion:

The results of the LIFO survey are given in table 4-1; figure 4-2 and 4-3.

Support/Giving:

From the table 4-1 Marit, Saeed and Rachelle are very supportive in a comfortable situation, meaning that they will work hard, be nice to everyone else and try to do what is best for the group, even though this will give them less influence. Bashir and Ashin are a little less supportive, but have reasonably high scores as well. Based on the results, in a less comfortable situation Bashir and Ashin will become more supportive. This will make the whole group

support giving. This might mean that when the group is under pressure or in a difficult situation the members are all willing to let the others decide, be open to compromise or even do not have an opinion at all.

Controlling/Taking:

In a comfortable situation Bashir and Ashin have both high scores. They like to be in-charge, make decisions and move forward with the project. Marit, Saeed and Rachelle have reasonably low scores. Based on the results the group will become less controlling in a less comfortable situation. Hence, this behavior is now the least favorable for all the members. This may not be a good sign since the group will need someone who could take in-charge and lead the members in the right direction during a difficult situation.

Conserving/Holding:

From the results, Saeed and Rachelle have the highest scores in a comfortable situation. This means that they will consider all options, avoid hasty conclusions and be very critical. In a more difficult situation Bashir and Saeed will be less conserving holding. This means that they will tend to make things go a little faster. Whereas Marit will be more conserving holding and she will take things slower and think more critically. In this category the group seems to have a good balance based on the results. Thus, in both situations three of the group members will prefer this behavior. They will listen to all of the opinions of the group members and will be more cautious when making a decision.

Adapting/Dealing:

Marit is the only adaptive dealing member in a comfortable situation while the whole group will prefer this behavior in an uncomfortable situation. This means that the group members will be more diplomatic, careful of people's feelings and may invite an external help to solve the problems. This may be a good thing, but it may disable the group and make it less progressive.

An assessment of the LIFO survey according to the group's experiences will be discussed in Chapter 8.4.

5   The cooperation agreement

On the 3rd day, the teaching assistants asked all the student groups to make a cooperation agreement. See attachment 1. However, during the 10th day they asked the village to change their agreements according to the Schwarz ground rules. See attachment 2. The cooperation agreement became the basic guidelines for our group to function as a team. Here is a summary of our contract.

- ***Technical Aspect***: Bashir was chosen as a leader. The group gave him an extra voice regarding the technical part of the course since he had more experience. The village was about the petroleum industry therefore it was obligatory that everyone in the group comply with the necessary requirements.

- ***Process Aspect***: Saeed was chosen as a leader. His task was to make sure that everyone was cooperative and responsible. The group gave him an extra voice when it comes to solving conflicts. Each member of the group was expected to be active in developing this process part and everyone should be open so the group should learn how to compromise.

- ***Work as a team:*** The group gave emphasis to the importance of communication, democracy, sharing of thoughts, being responsible, giving feedbacks to the finished parts, being active on "It's learning" and completing the task on time. Furthermore, a series of considerations regarding some tasks that couldn't be done on time was stressed out.

5.1   Making the cooperation agreement

On the 3rd day, the group sat down together and made a cooperation agreement. This would be the base for our group work and can be found in attachment 1. The first thing that the group decided on was whether they would need a group leader or not. They later decided to elect two, since a leader role can be divided into separate parts. (*In general, roles can be divided into those who involve the work that is to be done, and those which concerns the cooperation and the solidarity of the group*. from ref [8], translated from Swedish). The group thought that one leader position could become an overwhelming job for one person.

The group voted for the members that they trusted for the two leader positions. The outcome was to have Bashir in charge of the technical part and Saeed in charge of the administration and the process aspect of the project. The group made their decision in a democratic way. The group also decided to use democracy as the main way to solve problems in the future but if the group could not come to an agreement then the leaders would have an extra vote.

5.2   Changing the cooperation agreement

On the 10th day, about half way of the Part B, the group was given an assignment to look at the cooperation agreement and make some adjustments if needed, so that it would fit the group better. Using the Schwarz ground rules the group had realized that some policies were missing and some policies had to be written more clearly. One of them was that decisions would be made by democracy, which the group had all agreed in the beginning, but this was not been mentioned in the first cooperation agreement. The new cooperation agreement (March 17.) can be found in attachment 2.

5.2.1   Policies added to the cooperation agreement:

- *All decisions regarding technical issues should be made by democracy, but if the group*

cannot come to an agreement Bashir has an extra voice as stated above.

Reason: This was a policy that was intended to be in the first cooperation agreement, but by accident it was not been written down. This rule corresponds with rule number 9 from the Nine Ground Rules of Schwarz [4]

- *After each session/meeting the group will summarize what has been done, how the progress is going and the group should make a plan for what to do until the next time.*

    Reason: Some of the group members felt like they wanted more overview of what everyone was doing, how the group progress was going and what to do next. For example Marit and Rachelle did not know how the simulation was going since Bashir was in charge of this, and he had not shared information with the others since the last meeting.
    An inspiration was taken from rule number 2 and 7 from the Nine Ground Rules of Schwarz [4]

- E*very group member should share their opinions and be active in all discussions, so that all information is available for the whole group.*

    Reason: Not all the group members contribute the same amount to the discussion and Saeed was concerned not everyone felt confident enough to say their opinion. Here the rule number 2 and 8 from the Nine Ground Rules of Schwarz [4] was used as an inspiration.

- *Every group member should pay attention to what is going on in the project on "It's learning", post their work regularly and comment on what is being posted.*

    Reason: Marit, Saeed and Rachelle had posted some notes on "It's learning" that they wanted feedback and comments on, but almost a week later no comments were given. In addition, not everyone had posted their LIFO results like they were supposed to, in order to write a discussion about these. The group therefore agreed on being more active on "It's learning", so the project could make a progress even when the group did not meet. This goes under rule number 2 from the Nine Ground Rules of Schwarz [4]

In addition, the different tasks of each leader were written more clearly so they both were aware of their responsibilities and the other group members knew which of the leaders to talk to about different problems.

Most of the parts from the original cooperation agreement worked well and the group decided to keep them but also agreed on putting more efforts to follow the policies. Having a cooperation agreement, and having the possibility to change it, had made the group more aware of how the

group work had been developing. It has also made the group reflect on what makes them function and what was lacking to make them function better. The group had realized from this exercise that it was important to set the ground rules properly before starting the project so that everyone knows what was expected of them and how the work would proceed. In addition, the new cooperation agreement gave each group member a security and also the right to confront the others when a policy was ignored.

A review of the cooperation agreement will be discussed in Chapter 8.5.

6   Group Structure

In relation to the cooperation agreement the group decided to formalize roles and norms in order to understand and develop the group structure. Roles were assigned according to the background, expectations and interests of each member while norms were set to control their behavior.

The lists of roles and norms are written in the next subchapters. Here is a short description on how the group assigned the respective roles of each member and built up the norms.

Since the start, Bashir and Saeed showed their outspoken personality. They usually led the discussions. They later gained respect from the other group members and this was the main reason why they were chosen as group leaders. From day 2 the village groups were asked to write a group log. Marit always volunteered to write it for the group. She then became in-charge of the weekly logs until Rachelle took over from day 8. Marit and Rachelle were also assigned to work with the process report. Ahsin showed a lot of enthusiasm regarding the BrightWater mechanisms. He was very responsible in finding good reading materials for the project. Bashir as the simulation manager liked this attitude and he later trusted Ahsin to be his partner for the simulation part. Stian was the "cool guy" of the group. He always looked very relaxed but he could work very fast and efficiently especially when it came to reservoir description. Hence he was assigned to handle the geology part for this project with the help of Marit, his co-geophysicist. Rachelle came on day 2. She was very quiet and shy but later managed to be more open. She had some experience with economic analysis and chemistry so she was assigned to work with Saeed the economical analysis manager and Ahsin. The group did not have any difficulties assigning the roles for this project. Some of the roles were already clear since day 2 when the group was discussing about the task for Part B. See chapter 7.1.

The group decided to add more norms aside from the Wednesday meetings that were set by the Village to create a balance and to have an organized way of finishing the tasks. On day 3, the group required the members to come on time. Although this norm was also set by the village the group wanted to emphasize it more in order for it to be taken seriously. On day 5 Saeed tried to encourage the entire group to respond nicely to each other. On day 10 Marit realized that the way the group began the previous village days was messy. It always took a lot of time before starting

the real work and producing results. She emphasized that the group should take more responsibility and should use the time wisely. The experiences on day 5 and 10 made the group realized that confronting and solving problems would improve the relationship in the group.

The decision of the group corresponded to how Johnson & Johnson described roles and norms regarding group dynamics. Roles should be assigned in a formal manner according to the expectations while norms regulate the behavior of group members. [5] Structuring the group was the norming stage according to Tuckman's sequential-stage theory. Some of the roles and norms were already set as early as day 2 while conflicts started to appear on day 5. This experience was in contrast with the theory where the norming stage should come before the storming stage. [5] The situations behind Marit's realization on day 10 could be connected to social loafing, which was defined as the deterioration of individual effort. One important factor for this behavior was the group size. [6]

Storming stage will be tackled in chapter 7.2, a review of the group structure will be discussed in chapter 7.4 and Chapter 8.6 will discuss about Tuckman's theory in detail.

6.1 Role of the group members

✓ Ahsin- assigned to manage the mechanisms and environmental issues of BrightWater and work with the Eclipse simulation.

✓ Bashir- assigned to be the technical leader and manage the Eclipse simulation.

✓ Rachelle- assigned to work with the economical analysis in Part A, environmental issues of BrightWater and process report.

✓ Marit- assigned to write the group logs and to work with the geological part and process report.

✓ Saeed- assigned to be the process leader, to manage the economical analysis and write about different IOR methods.

✓ Stian- assigned to manage the geological part and work with the geological aspects of Eclipse simulation.

6.2 Norms set in the group
✓ Be responsible

✓ Use the time wisely

✓ Be punctual

✓ Respond to other members in an acceptable and respective way

✓ Confront and solve problems

7 Process throughout the course

This chapter will discuss the challenges that the group had experienced in order to finish the project on time.

7.1 Choosing the task

Since the 2nd day the village groups were asked to choose their preferences among the six tasks from Statoil for Part B. The village supervisors gave more than three weeks for choosing a task. Table 7-1 summarizes each group member's preferred task/s.

Table 7-1: The task preferences of the group members

	Ahsin	Bashir	Rachelle	Marit	Saeed	Stian
1st decision (Day 2)	6	4	6	1,6	6	1,6
2nd decision (Day 5)	6	4,6	6	6	6	6
Final decision (Day 7)	6	6	6	6	6	6

The group had a small conflict in choosing a task. A series of discussions happened on day 2, and in the middle of the day the group ended up with three choices: task 1, 4 and 6. Marit and Stian were good candidates for task 1 which was more about geology. Bashir wanted to work with task 4 and felt that he could manage this task very well.

Having three choices was not an easy way for the group to end the day. So a couple of discussions happened again. The group tried to analyze why task 6 was the best choice and came up with these reasons:

- *Ahsin was the only chemical engineering student in the whole village.*

  o He also felt that the task suited him very well and was very positive about giving his best.

- *Hydrate formation could be a part of the project*

  o Rachelle had some knowledge about hydrate formation.

- *Environmental issues regarding the application of BrightWater*

  o All the members of the group were willing to work with an environmental issue.

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- *Eclipse Simulation and water injection*

  - Bashir had some experience with Eclipse and knowledge about water injection.

- *Gullfaks Geology*

  - Marit and Stian were geophysics students and can describe the geological structure of Gullfaks.

- *Project Management and economical analysis*

  - Saeed could contribute by managing the project and will be a big contributor in the economical part.

From the given reasons task 6 allowed each group member to take part in the project according to their background. However, Bashir was still not convinced and was very skeptic about dealing with a chemical substance. He also felt that it would be a very challenging task since the group had to rely on the water injection simulation from another group before beginning with the BrightWater simulation. He later changed his decision on day 7.

Day 2 ended with a conclusion that the group will work with task 6 for Part B by applying democracy. From the ground rules, the group applied number 4 and 5, which states that considering the decision of every group member will allow the group to decide easily. In addition, this experience can relate to what West & Hirst stated, *"The task a team is required to perform determines to a large extent the level of innovation a team can implement"(p 261) [6]*. The group wanted to produce good results therefore it was important to evenly distribute the workload of the project.

7.2   Some conflicts and how they have been handled

7.2.1   Conflict 1:

On the 5th day we had a group exercise called "Team Meeting Survey". This exercise involved several statements about the teamwork, which each group member had to grade on a level of their agreement. What came up was that the group members had very similar answers, except regarding one issue. It was about how everybody contributed to the discussions. Saeed said: *"I feel that Rachelle and Ashin do not say as much as the rest in all discussions"*. Then Marit said: *" I agree in some ways, but maybe that's just because the rest of us talk too much and don't let them express their opinion"*. Then Stian said: *"We should always make sure that everyone have a chance to speak, and then when the discussion is over everyone has to say if they agree with the decision or not"*.

This exercise helped the group to become more considerate to the other team members and later more open during the next discussions. The group wrote in their log that day: *" The group felt*

that this exercise had been somewhat beneficial, but it may have been more valuable if the exercise had been carried out at a later point of the process." A similar exercise was held later on day 11 See 7.2.3. These two exercises were beneficial to the team development of the group.

Schwarz ground rule number 6 could describe the action taken by Saeed and Marit when they assumed that Ahsin and Rachelle were not active during the discussion. From the assumption ground rule numbers 2 was missing since the non-active members were not sharing all their thoughts and ideas, which could be relevant for the group. The encouraging words of Stian could illustrate ground rules number 2 and 8 which both stated the importance of sharing information and discussing issues.

7.2.2 Conflict 2:

On March 5th after the Bergen Trip, the group had an extra meeting and they experienced a small conflict. The group planned this meeting since it was a critical point in the process; the last and most important part of the project was starting. The group just finished part A. Now they were to start planning on how part B would progress and what the task of each team member would be. Bashir had some concerns regarding the simulation part of the project so the group had a discussion around that topic. What came up was that Bashir wanted to do gas -and water alternating gas injection in addition to the water –and BrightWater injection. This was far outside the assigned task from Statoil and the rest of the group protested against Bashir's idea. They could not understand why he wanted to take on more work than needed when the group obviously did not have enough time for this. After some back and forth discussions, Bashir realized that he had gotten too eager and misunderstood the context of the task. The group agreed on only doing what Statoil had assigned and if there would be an extra time, then the group could do an additional work to improve the oil recovery.

This discussion showed that it was important for the group to focus on the given task from Statoil and the group should make sure the task would be accomplished on time. In order for this to happen, the group needed to go through the assignment thoroughly and as a team agreed on one goal and on how to reach that goal.

Schwarz ground rule number 8 could describe the situation since the group discussed the idea of their technical leader. Bashir's eagerness could be connected to ground rule number 4 when he explained his intentions. Ground rule number 9 could illustrate the democratic way of resolving this issue when the rest of the group tried to convince Bashir to stick with the given tasks.

7.2.3 Conflict 3:

On the 11th day of Gullfaks Village, the group had a new "cooperation in the team" survey with the Daniel, the village teaching assistant. When the group went through their answers some underlying problems came to the surface. Bashir said that not everyone was active on "It's learning", which was our only communication tool during a non-village day, and he felt that

there were some difficulties setting the goals. He was frustrated since he had to spend so much time working with group number 5 to finish the water injection model that the group was supposed to use in the project. Saeed expressed another issue as well; he did not feel that the group members encouraged each other enough, which the rest of the group agreed on. In the last statement of the survey each group member had to give a grade on how the cooperation in the team was working in general. The majority of the group felt it was working well while Bashir said: *"I am a bit frustrated because I don't know what all of you are doing regarding the project. Everything has been divided and we don't talk as a group any more"*. Saeed then said: *"I don't think that is correct, it is a good thing dividing the work, it is much more efficient"*. Bashir answered: *"I can agree that it is much more efficient, but if we don't meet and discuss different things, no one knows what the rest are doing. That is not group work."*

These disagreements suggested that the communication in the group was not good enough and some members were not informed about what the others were doing or how they were feeling about the cooperation. To solve these problems the group decided to be more active on "It's learning" so they can inform the others more about their progress and that the group would not only have a meeting at the beginning of each village day, but also before ending the village day so that the communication during each Wednesday would improve. The solution that came up in this argument focused more about the team. In addition, the group members would try to encourage the others, listen to their problems and try harder to work as a team. This exercise made the group aware of the problems that they did not know and expected. Moreover, this exercise certainly improved the cooperation of the group, made them feel more like a team and not just a group of people.

Again, the Schwarz ground rule number 8 could describe the situation since the group made a discussion about an issue that disrupted the progress of their teamwork. The statements given by Bashir and Saeed could be illustrated by the Schwarz ground rule number 3 when they cited and explained some examples that hindered the progress of the teamwork. Ground rule number 4 could also describe the intentions and reasons of the two leaders. They intended to improve the teamwork and they gave some suggestions on how to do this improvement. Ground rule number 6 could illustrate the solutions given by the leaders when they encouraged everyone to participate and follow their advices.

7.3   Participation of the group members

	Ashin	Bashir	Marit	Rachelle	Saeed	Stian
Days absent	0	0	2	2	1	3
Village Day	0	0	11,12	1,12	12	8,9,10

The different group members were away at different times throughout the semester. However, it happened on day 12 that half of the group were not present. The absent/s did not affect the

project that much since they did their assigned tasks and finished on time. They also updated the rest of the group on "It's learning" when they had the opportunity.

When Stian was in USA he wrote a message to the group on "It's learning".

"*Cheers from the US. Hello good folks, I'm having the time of my life here in America, but don't hesitate to give me something to do while I'm over here. Look like you had a good time in Bergen. :)*"

Before Marit went to Brazil she informed the group on "It's learning" about her current status for the process report.

"*I added a small discussion about the new Cooperation agreement, think this is the last EiT work I will do before I leave for Brazil. Have a great Easter holiday*"

When Rachelle was still in Porsgrunn after the Easter Vacation she informed the group by also leaving a message on "It's learning".

"*Hi sorry I am still in Porsgrunn.... I can't come to the meeting tomorrow. But I am available on "It's learning" so don't hesitate to send some questions or tasks. I am very sorry about this*"

The group lacked at least one member for six weeks and this caused a minor problem regarding the group activities that were arranged by the village supervisors and teaching assistants. For instance Egil Tjåland conducted the LIFO survey on day 9 and Stian was not around. Although the group already had some clues regarding Stian's behaviour, it took more time for the group to make an assessment about his behaviour than anybody else. Therefore it would be an advantage to know his LIFO result. The communication in the group was also been affected as what was stated in chapter 7.2. In addition, some of the members felt more dissociated.

For example Marit wrote on her personal log before leaving for Brazil:

"*It is too bad I am leaving at this point in the project, feel like I am leaving the others with all of the hard work. Fortunately, Stian will come back from his trip next week and help the others out*".

7.4   Review of the group structure
The group members fulfilled their roles and no role exchanging happened. Moreover, the norms had also been followed carefully. One reason for this was everyone tried their best to be responsible.

7.4.1 Roles

Even though the roles were already assigned the group tried to help each other as much as possible. The group members had been very flexible regarding spending an extra time for the project.

Ahsin and Bashir cooperated well regarding the simulation part. They used some extra hours aside from the village days just to finish the simulation on time. Stian was also involved in the simulation since the geology part was about reservoir descriptions. He was working with Bashir on day 5 and 11. This is an example on how the cooperation had worked between these members. During a non-village day Bashir wrote on "It's learning"

"Sorry for keeping the group impatient. I just arrived home. So basically there have been 10 simulation cases for BrightWater. At last the 10th simulation could beat the water injection model. It gives some increment in cumulative oil produced. So I will run some more cases to see if we can get some more by changing the rates. If that does not happen then we can choose this case. Again I would be working on this project tomorrow with Ahsin but anybody who is wishing to join is welcomed :) God, I feel reborn after this result :))

Ahsin replied: *"I can meet you after lunch tomorrow if that's ok."*

Stian replied: *" I can Sunday and Tuesday. Sorry I was stopped by the heavy snow today"*.

Rachelle and Ahsin also cooperated regarding the environmental issues. They used day 11 and 13 to accomplish this task. On day 13 they even visited Jan-Åge Stensen to verify some things about BrightWater. Stian and Marit cooperated on the geology part on day 4, 5 and 13. These two sat together in the computer room and finished the reservoir description of Gullfaks Sør. When it came to the process report Marit and Rachelle worked together and tried their best to create a "good process flow". They also had extra meetings. Like the simulation group Rachelle and Marit used "It's learning" to arrange their meetings. After day 14, Rachelle wrote a message to Marit on "It's learning": *"Marit, can we meet again tomorrow or Friday to check the whole process report?"* Marit replied: *"Sure, I can anytime tomorrow or Friday, just let me know"*

Saeed worked alone on the economical analysis in Part B since he and Rachelle managed to make a good excel file from part A. He also tried to work alone on the different Improved oil recovery methods. On day 11 he asked Bashir about some good reading materials and Bashir suggested some of his books to Saeed. In addition, Bashir gave some tips on how to make this part of the report better.

7.4.2 Norms

The norms were able to control the behaviors of the group members. Especially in the situations when a norm has already been neglected.

Rachelle, Marit and Saeed did not manage to come on time on one village day. Rachelle and Marit were once 15 minutes late without sending any messages. Whereas Saeed was 1 hour late but he notified the group about this. Rachelle, Marit and Saeed were very sorry for not being punctual and promised never to do it again.

As what was mentioned earlier in chapter 6 social loafing happened during the course. Some of the group members tend to be relaxed when they felt that the time they had was more than enough. From day 2 to day 7 everyone in the group never forgot to open their Facebook accounts while working. Jan Ivar and the teaching assistants did their duties to stop the group from continuing this bad habit because they were usually checking on the village groups during the working hours. Marit also did her part because she noticed on day 10 that the group usually relaxes before starting the real work. After this incident the group tried to utilize their village day in a proper manner and during the last village days the entire group had their lunches in the computer room.

Another factor of social loafing was fatigue. [6] During the last village days all the group members had at least two more projects from their other courses. The group tried to understand this situation and tried to use their village days wisely. Some tried to compromise by working during the weekends especially if they did not get enough sleep before the village day. Saeed for example did this compromise. On day 13 he was complaining that he couldn't focus because of two other projects submission next day. One of the norms was to respond to other members in an acceptable and respective way therefore the group understood Saeed and told him to take it easy. The group also trusted Saeed and they knew that he would finish his part on time. Furthermore, Saeed was always active on "It's learning" even on a non-village day.

Another good example of following a norm happened on day 10 when Bashir was having troubles with the simulation. The whole group tried to confront and solve this problem by reaching out and advising Bashir to talk to the supervisors.

7.4.3   Group Leaders

Here is a short evaluation of the group leaders according to their performance. The whole group was satisfied with their choice and the respective leaders did their part according to the expectations of the rest of the members.

Saeed as the process aspect leader

Probably someone will find it strange that Saeed chose to work with the technical part when he was expected to be working on the process part since he was the process aspect leader. As what was mentioned on chapter 6 the group assigned the roles according to interest. The Schwarz ground rule number 5 further supported this. Saeed was having an interest to learn more about the different Improved Oil Recovery (IOR) methods so the group gave that task to him. Rachelle

was actually the person who was expected to do this part since gas was involved in some of the methods and she was also having an interest for this part. Saeed negotiated with her on day 9.

Saeed: *Is it ok if I work with the IOR methods?*

Rachelle: *Yes but you are the process leader. The process report should be one of your obligations.*

Saeed: *Yes but I want to work on it, if it is ok with you?*

Rachelle: *Ok I understand I also have an interest working with IOR but since I had a psychology subject in the Philippines it will be nice to work with the process report and I heard that you had a background in Industrial Engineering so it will also be a nice experience for you.*

Saeed: *Are you sure about this. Thank you.*

Rachelle: *Absolutely.*

Even though Saeed chose not to work with the process report he did a good job as a process leader. He was always critical about the discussion details when something was not clear he would ask for more explanation. He always brought up concerns and problems so the group could reflect and solve these issues. For example on day 5 Saeed called the attention of Rachelle and Ahsin who were always quiet during discussions. He encouraged them to talk and he wanted to know how they felt. Another was on day 10 when Bashir was silent during a discussion, which was strange. Saeed called his attention and asked if he had some problems. Bashir confessed about Eclipse difficulties. Saeed advised him to contact our village supervisors first before consulting with the Statoil supervisors. Furthermore on day 11 Saeed encouraged everyone to show the status of their tasks and right after this discussion the group members posted their unfinished works. Saeed was always constant about checking on the opinions of all the members even during the non-village days. Here is an example when Saeed wanted to know the comments of the other group members regarding the simulation result of Bashir.

"Hey Bashir! Your determination is admirable :) Marit, Stian, Rachelle and Ahsin what's your idea? If you have any comments please just write it on "It's learning" and let the group know it."

From these experiences Saeed supported well this definition of a leader *"the leader exerts powerful social influences on the group or team and therefore affects team performance."* p. 269 [6] According to the four leadership roles of Barry (1991) and Yuki (2002) Saeed can be considered as a *"Facilitative leader who encourages an atmosphere conducive to teamwork, ensuring team interactions are equitable and safe, encouraging participation, sharing of ideas and open discussion of different perspectives."* p. 271 [6]

Bashir as the technical aspect leader

As a reservoir engineer Bashir was always excited about the Eclipse simulation. During the Bergen trip the group received three ways on how to mimic the behavior of BrightWater in Eclipse by using boxes, tracers, and polymer to reduce the permeability of the reservoir. Bashir already had some knowledge on how to deal with the first and second option. After the Bergen trip he told the group that he can begin anytime with the BrightWater simulation but the Water Injection should be done first. As a technical leader Bashir cooperated with group 5 until this group had finished the water injection. During Bashir's cooperation he somehow neglected one of the cooperation agreement policies. He did not manage to inform the rest of the group about his status. From day 8 to 11 Bashir spent most of his time with the other group. During the group discussion on day 11 he admitted this issue and was feeling very sorry. However, he also surprised the group during the same village day he organized a group meeting with Jan-Åge Stensen (a Sintef researcher who was once involved with the BrightWater research in Statoil) to clarify more things about BrightWater regarding its mechanisms and environmental issues. The group was very satisfied about this and was very proud of their technical leader.

Bashir always shared his big ideas about the project. On day 7 he mentioned about his big plans for the simulation. According to him *"If I have enough time I will try to do the water alternating gas (WAG) method because I have a feeling that this will make a better result than water injection."* But on day 10 with the help of Saeed's persuasion Bashir confessed about his difficulties with water injection. As a part of his duty he solved this problem by approaching the village and Statoil supervisors. He later changed his mind about WAG and stayed focus to the task descriptions.

Bashir carried a big load for the group. The reasons are: one for being the technical aspect leader and another for being the simulation manager. He managed a lot by himself and used a lot of extra time other than the village days. With the help of mostly Ahsin, plus the encouragement from the rest of the group, Bashir was able to fulfill his roles more than expected.

According to the four leadership roles of Barry (1991) and Yuki (2002) Bashir can be considered as *"A leader who acts as an innovator envisions project opportunities and new approach by questioning team assumptions and challenging the status quo."* p. 271 [6]

7.4.4 Language as a factor

Everyone in the group can speak English fluently so communication was not an issue. However, a language issue came on day 2, when the supervisors presented the previous reports. These were the references for the project and all of them were written in Norwegian since Gullfaks Village was using this language during the past years. A number of online translators were available and the group was aware about them but these translators were not good enough for the technical

report. Half of the group members can speak Norwegian (Marit, Stian, Rachelle) and they had been very helpful to the other group members.

These were the following measures set by the group:

- Marit and Stian volunteered to read some of the previous reports, which were written in Norwegian and tried to explain them to the Group.

- Rachelle and Ahsin worked together regarding the environmental issues of BrightWater in Norway since the webpage of the Department of Climate and Pollution was mostly written in Norwegian.

7.5 Productivity Scale
The group rated their performance on each village day by a scale of 0 to 10
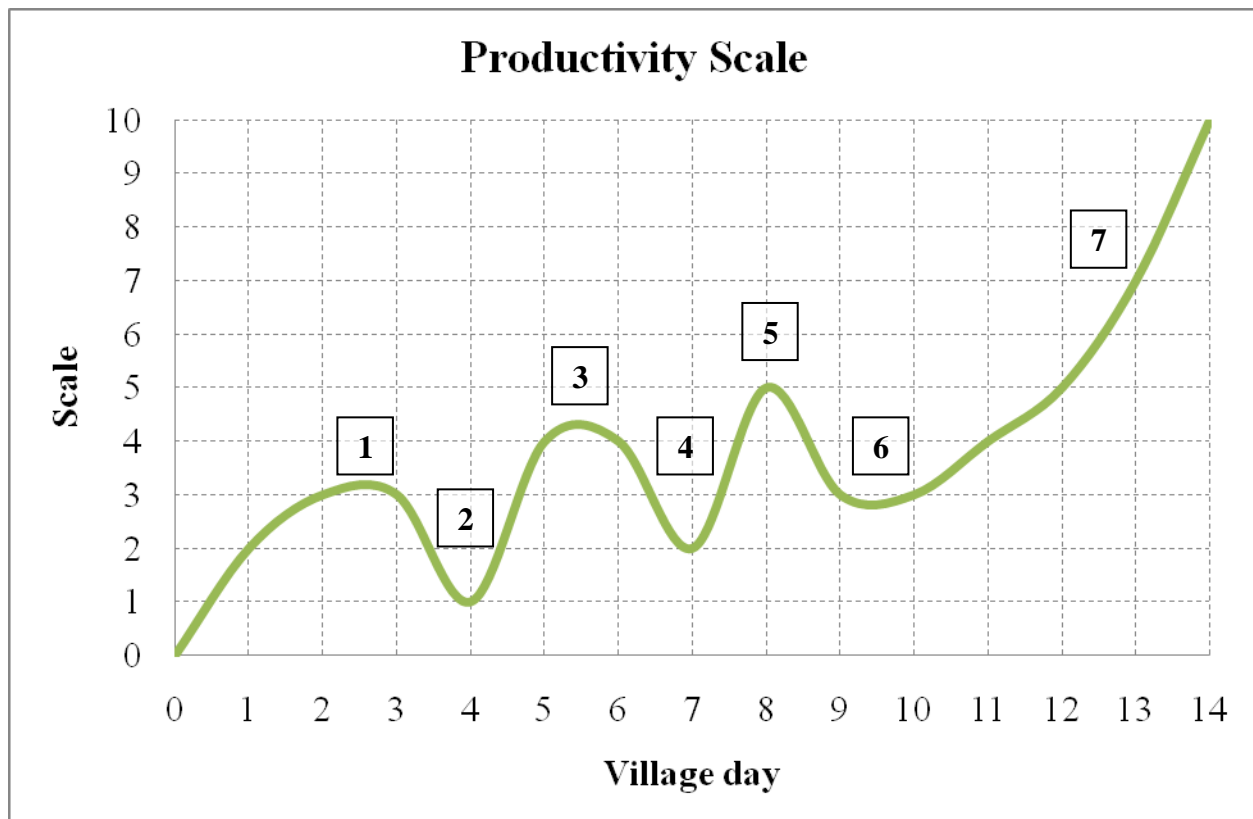

Figure 7-1: Productivity Scale

    1.) Presentation of the tasks and the group started to work on Part A.

2.) The group used a lot of time looking for a computer to work on. After finding a computer the group had simulation errors. No positive results.

3.) The group learned from the last village day that working together on the same thing was not efficient so the group decided to divide the work load of task A. The group managed to finish task A before the submission on day 7.

4.) The group went home early. The day was used to research about BrightWater and prepare some questions for Bergen.

5.) The village went to Bergen. The group met their supervisors and had a good discussion with them. The group gained more knowledge about BrightWater and received good advices on how to simulate the task. The day after the trip the group began working with the theoretical part and Bashir began cooperating with group 5 for the water injection.

6.) The group began writing the technical and process report. The group had some uncertainties on how to structure the two reports so they spent some time on discussing this issue and they consulted the village supervisors and teaching assistants for some advice. The group also had some difficulties finding relevant materials. They managed to solve this problem with the help of Jan Åge Stensen. He gave the group some relevant papers about BrightWater.

7.) The Easter vacation was the week after the 11th village day. This did not stop the group from being productive and utilizing the remaining time well. On day 13 almost 80% of the process report and 60% of the technical report were finished. The group worked harder on the last village days and all the members spent a lot of extra time to finish the project on time.

8   Teamwork

This chapter will analyze how the teamwork had developed throughout the course.

8.1   Application of the Schwarz ground rules

Like Schwarz, the group used the diagnosis-intervention cycle shown in Figure 8-1. The cycle enabled the group to diagnose the conversations and behaviors of the group members and later infer which ground rule was missing. The intervention part was the application of the missing ground rule to solve an issue. The group intervened properly in all the conflicts since their actions corresponded to the missing ground rule/s. For example the first conflict in chapter 7.2.

Diagnosis: Rachelle and Ahsin were not active during discussions

Missing ground rule: number 2 and 8

Intervention: All members should speak and all opinions must be heard. This action corresponded to the ground rule number 2 which stated that each member should share all relevant information including feelings and ground rule number 8 which stated that discuss everything.
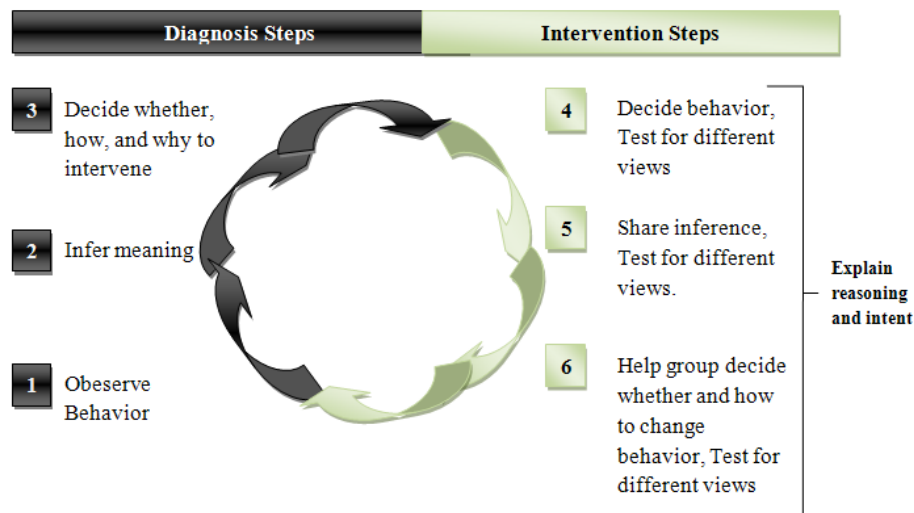

Figure 8-1: Diagnosis intervention cycle [4]

Some members went out of the boundaries set by the norms and the cooperation agreement. These issues were discussed in chapter 7.2. The Schwarz ground rules helped the group to analyze their conflicts. Moreover these ground rules led the group to realize whether their interactions were proper to solve these conflicts and ensured that the teamwork was progressing.

8.2 Interdisciplinary and Multicultural group

As what was stated in chapter 6 one benefit of being an interdisciplinary group was having no problems assigning the roles of each member. Another benefit was to avoid having the same contributions "redundancy" which could waste time and effort. [6] The points written in chapter 7.1 supported the benefits of being an interdisciplinary group.

Age was included as an indicator of culture. [6] Saeed was the senior of the group according to age, industry- and teamwork experiences. The rest of the group usually listened to him and respected him even Bashir the technical leader. As a mature individual Saeed was been very organized regarding meetings, had been constantly checking on the opinions of all the group members and had been straightforward when it came to some issues that needed attention. See also chapter 7.4.3

In terms of having different nationalities, the group did not encounter any issues since all the members had some experiences working in a team. In addition, the norms and cooperation agreement helped the group to control their behaviors while working together.

However, even with the advantages written above, the group had some loopholes regarding the teamwork. These issues will be discussed later in chapter 8.5

8.3   Relationship within the group

In the beginning each group member tried to be familiar with one another by asking about their courses, interests and reasons for being in Gullfaks village. The discussions until day 9 showed that the group's goal was only to finish the project on time. However, on day 10 Ahsin, Marit, Saeed and Rachelle showed some concern regarding Bashir when he was having a difficult time with Eclipse. Ahsin promised to help Bashir as soon as he finished the theoretical part of the BrightWater. Marit, Rachelle and Saeed asked Bashir on how to help him.

On day 11 some of the group members tried to reach out by lending their time and hands. For example Stian just came back after his vacation and he was already finished with his task. He asked the group "*Is there someone who needs some help? I can do any tasks now just tell me.*" The group also helped each other to minimize social loafing by responding to each bulletin post on "It's learning" and gave appraisal when someone showed a good result. This was related to expectancy value theory, which stated that when a task increased its value because of positive feedbacks this would eventually result to high outcomes. [6] For example when Bashir posted about his simulation result before day 14 some of the group members responded happily.

Bashir wrote: "*I killed WATERCUT ISSUE :) INCREASED OIL incredibly :) Today I read some SPE papers about Water Injection and optimization of this system, plus some papers about application of Material Balance methods for optimization of the reservoir water flood. And guess what, after application of this knowledge I got huge increment in Total Oil produced, I would even say that I killed WATERCUT :)) I feel reborn second time:))*

PS: I promise you would really be surprised

Saeed replied: "*Hey Bashir! Your determination is admirable :)*"

Rachelle replied "*Wow Bashir that's great news!*"

Marit replied "*Great Job Bashir!*

From the feedbacks Bashir felt very pleased and more motivated. He even tried to do more simulations and in fact he mentioned that all-in-all he did around 50 simulations.

The Bergen trip had something to say about the relationship in the group. Saeed, Rachelle and Bashir went to the airport together. They met Marit and Ahsin there and the group had a small

discussion before taking the flight to Bergen. On the way back home, Saeed, Rachelle and Bashir took the same trip to Moholt.

In addition, the breaks during the village days had something to say as well. During the breaks the conversations became more personal. On day 10 Marit, Ahsin and Rachelle had a lunch together and they were talking about their plans for the summer. On day 11 Stian opened up about his passion for snowboarding and his two part-time jobs. On day 13 Bashir, Rachelle and Saeed walked together home and had some funny conversations regarding their countries.

In the beginning the intentions were pure work. As the group members knew more about each other they became more concern about the feelings. Then later friendships developed. On day 14 the group concluded that they had a healthy relationship towards one another.

8.4 Accuracy of the LIFO results
The group members made an assessment of the LIFO results according to their experiences from village day 1 to 14.

In the beginning of the project the situation was comfortable and it was not much stress in the group. At the end of the process when the deadline was coming up a less comfortable situation developed. This time the pressure was on, and the group members were starting to be stressed, and concerned that the project would not be finished on time.

The group leaders:

From the LIFO results of the group, Bashir was the best person for the technical aspect leader position since his scores for control taking behavior were considerably high in both situations. According to the results Bashir would be very controlling in the beginning of the project. This corresponded well with what the group had experienced. Bashir was leading the group discussions from day 2 until day 9. On the other hand, when he started to experience some difficulties regarding the Eclipse simulation his behavior became less controlling. He tended to use the discussion time to share his struggles with the simulations then later laughed at the error messages from the simulations. From the LIFO survey this behavior was the sign of being adaptive dealing and this corresponded very well from Bashir's result. But he managed to cope up with the simulations and tried not to forget his obligation as a technical leader. In fact whenever someone needed help for the technical aspect, Bashir was always ready to give a helping hand. This behavior also suited his LIFO result that during uncomfortable situations he will also prefer to be support giving.

Saeed was according to the survey will remain conserving holding and support giving in both situations. This was what the group had experienced as well in the sense that he remained systematic throughout the course. He constantly tried to apply the policies from the cooperation

agreement and he always asked for the opinions of each group member. For this reason the group had chosen the best person as the leader of the process part of the project.

Teamwork:

In a comfortable situation the scores of the group seem to be well distributed among the four categories of behavior. They seemed to be filling each other out very well and made a balance in terms of harmony. This corresponded well with what the group had experienced in the beginning of the project. Some of the group members like Bashir, took more control than the others, some were more supportive like Marit since she usually volunteered to write the group logs and Saeed who always wanted to hear the opinions of all the members and tried his best to resolve any issues in the group. Stian worked very efficient since he was more focused on having the work done before ending the village day while others like Rachelle and Saeed did a lot of discussions before finishing the economical analysis in Part A. These two even asked the opinion of Uwe from group 3 and had some discussions with him as well. Ahsin was just working according to what was necessary for him. These diverse behaviors could have caused conflicts, but it made the teamwork functioned well.

According to the LIFO survey, in a more stressed situation there were three dominating behaviors: support giving, conserving holding and adaptive dealing. During the part B when the group had to face a lot of challenges, no one in the group took control. Bashir took full focus on the simulation part and sometimes forgot to share information about his status while working with group 5. Saeed remained the same as what he was during the comfortable situation. The whole group became very adaptive dealing since they became very open to each other. The group also became more careful about their feelings and they did invite some external helps from Jan-Åge Stensen, their Statoil supervisor Petter Eltvik, both of their village supervisors Jon Kleppe and Jan Ivar and even their teaching assistant Daniel. The group also showed that they were very support giving since they were offering a lot of help to each other during discussions. Although the group became more social they managed to be responsible until the end of the course. They did not waste their time during the village days. They worked harder during the last days, some even took their lunches in the computer room and all the group members used some of their weekends to finish the report. However, the group did not emphasize the importance of having a deadline for each task since there was no one who was controlling. Therefore most of the results came during the last village day. The results were very reasonable and well written. This behavior was best described as being conserving holding when a person value reason. The behavior during the last village days was been depicted by the productivity scale in figure 7-1.

The LIFO results suited very well the experiences of the group and had contributed a lot to understand the behaviors of the group members.

8.5 Cooperation agreement

The first edition of the cooperation agreement focused mainly on encouraging the members to be responsible. The agreement helped the group to manage the Part A very well. However, problems occurred while dealing with the Part B. This was shown by the productivity scale on figure 7-1 that after Bergen trip the efficiency of the group went down. Fortunately on the 10th day, the teaching assistants gave an instruction to the village to reflect on their cooperation agreement by applying the Schwarz ground rules. The group managed to revise their cooperation agreement according to the needs of each member as what was stated in chapter 5.2. The new agreement emphasized the importance of communication and having a progress report every village meeting. This allowed the group members to be more active in group discussions and on"It's learning". In addition, the group decided to make "It's learning" as their official means of communication during a non-village day. The group usually used it to plan their extra meetings. Some examples were already shown in chapter 7 but here is an example when the whole group was involved.

Marit: *"Hi! Me and Bashir talked about having a meeting tomorrow to plan the progress of the project. Can everyone at 13.00 ?"*

Saeed: *"Hi guys, I couldn't come at 1 PM on Friday. 3 pm would be convenient for me and where it will be held it? Petroleum Department?"*

Marit: *"Ok. I can at 3 pm."*

Bashir: *"I can at 3 on Friday. What about Rachelle and Ashin."*

Ahsin: *"1500hrs is ok to me 1300hrs is also not convenient to me."*

Rachelle: *"Ok for me too see you!"*

Stian: *"It's ok for me"*

Another good example of following a cooperation agreement policy was shown by Saeed when he informed the group that he was coming late on day 13. He wrote on "It's learning" the day before.

"Hi dear teammates, I have an extra lecture between 8 to 10 Tomorrow morning. So, I will meet you around 10:30 :) see you all tomorrow"

Chapter 7.3 also showed some good examples from Stian, Marit and Rachelle.

However, not all cooperation agreement policies were properly followed. One example was when Ahsin left without informing on day 10. The group became worried because of his sudden disappearance. Rachelle later called him to check where he was, and found out that he was

having a severe headache. The group understood his situation but advised him to be more open and to feel free.

Before the Bergen trip, it was only Marit and Saeed who were active on "It's learning". The group fixed this issue by adding two discussion boards, one for process and one for technical. It became easier to determine who among the group were less active and it was a more convenient way to cooperate regarding the process report. But even with these efforts not everyone participated with initiative. Marit and Rachelle who were in-charge of the process report had to remind the other members to follow the topics on the discussion boards.

As what was mentioned earlier the two group leaders did their job very well. The rest of the group members also managed to do their parts in a very satisfying manner. Even with some drawbacks, the cooperation agreement helped the group to control their behavior and systematize their teamwork

8.6 Teamwork development using Tuckman's theory

Looking back on how the teamwork has developed during the 14 village days of working with the project, the group can relate to a theory developed by Bruce W. Tuckman. He stated that there are five stages of teamwork:

1. *The forming stage*
2. *The storming stage*
3. *The norming stage*
4. *The performing stage*
5. *The adjourning stage*

In the beginning of the project, the group used a few Wednesdays to get to know each other and try to find our place in the group. For example the group decided who would be the group leaders and defined their tasks, and they wrote the cooperation agreement that based on the ground rules of Schwarz to improve the teamwork (see chapter 5). This could be defined as *the forming stage* in Tuckman's five stages. After a few weeks, the group members felt more secure and that they could express their feelings more and bring up issues. This was the time when the group experienced their first conflicts (see chapter 7.2) and it was similar to what Tuckman defines as *the storming stage.* Tuckman says that group members will "resist the influence of the group and rebel against accomplishing the task". This was not what the group had experienced, but the group became more open during discussions which lead to some conflicts, due to the fact that the members knew each other better and felt more secure. After these conflicts the group had an exercise where they rewrote the cooperation agreement. The group added and changed some policies so it would fit them better and optimize the teamwork. This could be defined as *the norming stage*, where group roles and norms for the team were set. At this time the cooperation agreement was changed and the final rules of the teamwork were then set, In addition, the roles

of the team members, or their respective responsibilities were finalized. According to chapter 6 the norming stage came before the storming stage which was true but the final agreement about the roles came after the conflicts. During the last 3 weeks of the project, the group entered *the performing stage*, defined by Tuckman. The group now had to work very hard to reach their goals and to finish the project on time. During these weeks the main part of the project was completed and the whole group worked better as a team than ever before, since they did not have any other choice than to focus on the task. The group entered *the adjourning stage* when the project was handed in. [5]

9   Summary

From the analysis given in the previous chapters, it can be seen that the teamwork was implemented well in the group. The group members understood their own competence and they were able to use their expertise for the benefit of the whole group. Some of the group members who lacked expertise contributed according to their interests. From the beginning, all the members showed great motivation and were very enthusiastic about giving their best for the course. However, the group was not perfect and a number of problems surfaced which affected the progress of the teamwork. One problem was some members were not actively participating on "It's learning" and group discussions. The group took a lot of initiatives in order to solve these problems and to improve their progress. Examples of the initiatives: the group assigned two leaders based on their qualifications and early behavior which increased the efficiency of the group, distributed the roles appropriately, built up norms to remind each other on how to work as a team, handled conflicts in a civilized manner, respected each other, improved their communication, used extra hours to make good results and achieved one goal together. Finally, the group members became very familiar with each other and some of them became good friends after the course.

The village coordinators did a great job managing the student groups. The supervisors were all very approachable and the teaching assistants were very friendly and supportive. The cooperation agreement became the framework of the group, the Schwarz ground rules helped the group to analyze their conflicts, the team meeting survey and the cooperation in team survey helped the group to understand their needs while the LIFO survey helped the group to be aware of their behavioral patterns. From these exercises, the group managed to control their behaviors in a good manner and made the Experts in team 2010, a better teamwork experience.

10 Conclusion

This chapter will show the individual reflections of the group members and the group conclusion.

10.1 Individual Reflections

This subchapter will show the reflections of each group members regarding their experiences and expectations from Experts in Team 2010.

10.1.1 Ashin

It was really a very interesting work as I got to know a lot about reservoir engineering, simulation work, and how to work under pressure, as our simulation work was not giving good results. In addition, applying hit and trial methods and thinking in different ways under pressure was a really good experience. Secondly it was good that we divided the work, so everyone has concentrated on his or her work, and especially working with people from different background has been a really nice experience. I learned a lot that is relevant to petroleum engineering and also about environmental rules and regulations of Norway.

Working in team and getting to know people with a different background has been a good experience.

10.1.2 Bashir

When we started the village project I thought it was really going to contribute in my knowledge with working in a team, but in the end I see that it did not really fulfill that expectation. But I am really lucky and proud to have met such professional and hardworking team. I think that our team was the best in terms of proficiency level, friendliness and have also had a high contrast of disciplines. Another thing I realized is that this village is more about doing a project for Statoil than contribution to personal skills. As I thought from the start, in the end our project appears to be the only negative feedback giving BrightWater does not decrease watercut for our field, as it is suppose to. I have been forceful to myself and to my team to prove the usefulness of the given project, but in the end I feel that I should have done it in a different way. I should have explained the technical aspects of this project to more people in our team, as I see now how flexible our team is. And I do not doubt that we would have had better results if I had subdivided the project more than I have done. Sometimes I felt overloaded and confused with the amount of technical work, since I had to work with Group 5 as well. But it fulfilled one of my wishes regarding project; I was challenged technically and got to test my skills and the limits of my ambition. In addition, I have to say that not to mention being a team willing to contribute, our team members are interesting people, and easy to talk to and share things with. I feel lucky and pleased for gaining such friends.

10.1.3 Marit

During the weeks of this project I have learned several things about myself in a team and teamwork in general. Before this project I had worked in team many times before, but hoped this would be a bit different, that I would learn more about what makes a team function well. I thought learning about teamwork would be a bigger part of the project, but anyway I have learned a few things. For example, have I now experienced that to make a team function we have

to take action during the process and cannot just plan how to be a good group and then hope it works out. We started with writing the cooperation agreement and thought these rules would be sufficient for our group. What we realized was that we could not predict what would happen and that adjustments had to be made during the time of the project. Another thing I have learned is that working together as a group is much harder and is more time-consuming than just dividing the work, but cooperating more may give a better result. In addition I have experienced that communication and openness in a group, can really affect the progress of the project. And I am glad we discovered these problems and solved them before it affected the result too much. All in all, it has been a good project and I have learned a lot and gotten to know new people. In some ways it has lived up to my expectations, in other ways not.

10.1.4 Rachelle

I felt very comfortable when I first met my group on day 2 and this feeling lasted until the last village day. This project became a positive experience because I learned a lot of things more than expected. I gained more knowledge about economic analysis when I was working with Saeed. I learned the symbols for classifying the hazards of chemicals when I was working with Ahsin. I gained knowledge about the upstream process in Gullfaks Sør. I met new friends and even spent some great time with them after school work. Finally I gained understanding about the theories behind teamwork. However, I felt that 14 days of working as a group was not enough to understand teamwork completely since the group did not come to the stage of being more flexible in the patterns of working together. Even so I am very satisfied with the cooperation that my group mates had shown.

10.1.5 Saeed

Our expert in team assignment was a real case for a real company. We were put in a multi-disciplinary team, and the purpose was to reach a common goal in the best possible way. As we didn't know anything about each other and came together from different disciplines and different departments, we expected to have challenges and issues. Fortunately, in practice, due to a pretty good cooperation and coordination between team members, we have not faced any severe issues and could overcome some minor problems that by nature would exist in any new team.
In spite of the complexity, issues along the way and a high degree of technical matters in our project, for some reasons this village and this course became my favorite subject this semester.
  - *I've become more familiar with the oil & gas industry especially the well-known Oil & Gas Company, Statoil.*
  - *I've experienced a real project in almost a real environment.*
  - *I could use my academic knowledge in a real project that helped me to understand much better the application of them.*
  - *It was such a great opportunity to work in a cross-functional team and familiar with its practical challenges and learning how to overcome them.*
  - *Gained some good and new friends from different cultures.*

10.1.6 Stian

The course started well, with the exercise on personal skills/expertise and the cooperation agreement, but that the focus on teamwork was put aside and the technical issues were prioritized. I was hoping to learn more about working in teams, different strategies, methods etc. For example will an army-like team with one strong leader work in a coffee bar, or will totally democracy work in a drilling-team? I don't feel I have developed as a "team-person", and I am a bit disappointed with learning-output on teamwork, I was hoping to become an expert, but I am still just a rookie. I was 3 weeks in US when there were some team-exercises, but I still think this has been a course about doing a project for Statoil the best way, not a course in team working.

10.2 Group conclusion

Based on the individual reflections, the team members had learned different things and had experienced this project in different ways. The group also felt that the environment that they were working in was good and comfortable. The group had their differences but they had only one goal and they reached this goal together even though they had to face some problems along the process. The group tried to solve these problems together as well by giving importance to "communication" in order to optimize the teamwork. The task that the group had was very similar to what they would meet when they started to work in a company. Having the experience to work in a multicultural team was always worth having. From the reflections, some of the group members did not feel that they had learned much about teamwork while others felt that they had learned more. One reason could be that some members were in charge of the process report while others were in charge of the technical part of the project. Due to this distribution, some of the group members had learned more about teamwork and the theory behind it, while others had learned more about the technical aspect of this project like simulation, the mechanisms and environmental issues regarding BrightWater.

Cooperation Agreement of Group 1 for Gullfaks Village Tasks

Policies on decision making and on responsibilities of group leader:

1. Group 1 will have 2 leaders: one for technical aspects and the other one for process aspects.
2. Group leaders make sure that the job is done consistently and accurately.
3. Group leaders have extra voice on decision making (on technical aspects).
4. Technical group leader must take care of communication with village supervisor and project technical leader at Statoil.
5. Group leaders must follow up the tasks.
6. Group leaders must solve disagreements or bring up concerns and problems to group meetings.

Disagreements and discussions:

1. If anybody in the group would like to switch the task or call for help with task, the solution must be found in group meeting
2. During the solution of task group member should discuss his/her results with person of higher experience in the field and then bring the results to the meeting with no manipulation.
3. If the deadline is approaching for task delivery decision on how to deal with extra work must be made by group leaders.
4. It is the responsibility of group member to notify the case of late appearance (as soon as possible). If he/she completed the job given, he/she should upload the soft files with understandable comments to It's learning folder of group.

Group member policy:

It is the member's responsibility to get and complete assignment.

Rossing, Marit

Ramazany, Saeed

Ang, Lorena Rachelle P

Haaland, Stian Schjelderup

Nazir, Ahsin

Hasanov, Bashir

Date

Cooperation Agreement of Group 1, Gullfaks Village. 2nd edition.

Policies on responsibilities of group leader:

Group 1 will have 2 leaders: one for technical aspects and the other one for process aspects.

Responsibilities for group leader on technical aspects, Bashir:

1. Must take care of communication with village supervisor and project technical leader at Statoil.
2. Group leader have an extra voice, when decisions regarding the technical part are made.

Responsibilities for group leader on process aspects, Saeed:

1. Group leader make sure that the job is done consistently and accurately.
2. Group leader must follow up the tasks.
3. Group leader must solve disagreements or bring up concerns and problems to group meetings.

Group member policy:

1. All decisions regarding technical issues should be made by democracy, but if the group cannot come to an agreement Bashir has an extra voice as stated above.
2. It is the member's responsibility to get and complete assignments.
3. If anybody in the group would like to switch the task or call for help with task, the solution must be found in a group meeting.
4. During the solution of task group member should discuss his/her results with person of higher experience in the field and then bring the results to the meeting with no manipulation.
5. If the deadline is approaching for task delivery decision on how to deal with extra work must be made by group leaders.
6. It is the responsibility of each group member to notify the case of late appearance or if the person cannot attend, as soon as possible. If he/she completed the job given, he/she should upload the files with understandable comments to It's learning folder of group.
7. After each session/meeting the group will summarize what has been done, how the progress is going and the group should make a plan for what to do until next time.
8. Every group member should share their opinions and be active in all discussions, so that all information is available for the whole group.
9. Every group member should pay attention to what is going on in the project on it's learning and post their work regularly, and comment on what is being posted.

Ang, Lorena Rachelle P

Haaland, Stian Schjelderup

Hasanov, Bashir

Nazir, Ashin

Ramazany, Saeed

Rossing, Marit

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