

# Team theory - how to use team building as a tool in ”Coaching of Programming Teams”

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March 6, 2015

**Keywords:** team building, activity, XP values

## **Abstract**

This is a report about teaching XP through team building and finding the right team building activities to use in the LTH course *Coaching of Programming Teams*. Team building has a variety of meanings, and the number of possible activities are enormous. In this report we have tested activities and analyzed the results from each of them. In the end it turned out that there are a range of activities that works for this purpose and that there are many more potentially excellent activities that we didn't have time to explore.

# 1 Introduction

Many a person has heard the concept of team building and how useful it is. This report focuses on how it could be useful in the LTH course *Coaching of Programming Teams*. A difficult part when it comes to team building is knowing what activities to choose. There are a lot of different sort of activities, both in duration, number of people needed and space required. How does a coach know what activities are suitable? We immediately recognized the difficulty in the question and realized that our work in this area could be useful for future coaches. In order to find out what sort of team building activities could be suitable for a future coach we decided to try and find the answers to the following problem statement:

- What activities can be suitable during the *Coaching of Programming Teams* course?
- Does the amount of activities affect the result of them?
- Can an activity be used too much e.g. can there be too much of the good stuff?
- Can an activity have no effect on the team?

In order to find the answers to our questions we had to research XP values so as to apply them to team building, group and team building models and also papers containing a number of team building activities. From all that we then selected a variety of activities that would prove or disprove an aspect of our problem statement. The activities were also selected based both on both duration and spacial requirements. We then set up a number of criteria that we used in order to properly observe the results of the chosen activities. The activities we selected were performed by the team throughout the course and we then analyzed the responses through observations. How the team was working before and after, the mood of the team members, how appreciated the activities were. With this we believed that all our questions could be answered.

In this report we will start with a background that describes what we based our work on and how we wanted to apply it. We will then describe our method, and thereby explain how we chose our activities and what criteria we followed to measure the success of an activity. We will then in the result describe each activity and the observations we made during each activity. At the end we will analyze our results and then finalize our report with a conclusion regarding what sort of activities that future coaches should use in their team building.

# 2 Background

What is team building? There proved to be many different definitions out there but here we will give the definition we had in mind when starting this project. We will also give some additional facts around team building that is relevant to this particular paper.

We've also studied two group models - FIRO and Tuckerman's stages of group development. The first is a more general group psychology model while the latter is more specific for team building. However, in essence they are very similar and contain as well as address the same things. So since the FIRO model is more generally well known we will put focus on it in this report. We have also studied the XP values in order to apply them in our team building and planning. We will end the background by describing how we aim to apply our work.

This course is about giving the team practical experience of agile programming. Or more specifically, Extreme Programming. As we wanted to see if team building could help teaching Extreme Programming we first had to read up on the subject.

## 2.1 Team building

Team building is a method used to enhance or build up the cohesion of a team with common activities. Team building also aims to create safety through challenge, and is an aware strategy to increase motivation and effectiveness of a team [1].

When choosing, preparing and running a team building activity there are several things one has to keep in mind. Step by step it goes as follows [5]:

- 1 (before), select a suitable activity. An activity should have a clear goal in order to get optimal results.
- 2 (before), prepare for the activity. Be sure you know what to do and how to do it. This includes things such as potentially getting material for an activity.
- 3 (during), explain the activity to the team. Explain what you're going to do and why.
- 4 (during), check that the team understood step 3. The team as a whole will gain more from an activity if everyone in the team understood.
- 5 (during), run the activity. Encourage them and make sure they follow the rules.
- 6 (during), debrief and reflect. This is the most critical part as this is where they will apply what they just learned from the activity to their team or workplace.
- 7 (after), reinforce what they learned. If needed, remind they team in different ways of the activity and what the learned from it.

## 2.2 The group model(s)

The FIRO model (short for Fundamental Interpersonal Relationship Orientation) is a model that focuses on how a group of people evolve together and especially how a leader should handle the different needs of the different phases.

The FIRO model has three main phases; the belonging phase, the role searching phase and the togetherness phase, see figure 1. In between the main phases are minor, calmer phases where everything is dandy for a short period of time.

In the belonging phase you decide if you want to belong to the group or not and also check if you're allowed to join the group. In this phase people are generally insecure and careful with what they say or do. The role searching phase is where people have decided to belong to the group but still aren't sure what role they want. This role searching might, and often do, lead to conflicts due to people having different goals and wanting different things. In the togetherness phase the group has settled and everyone knows their role. The the main focus in the togetherness phase is on the task at hand and how to solve it [1].

## 2.3 Group models and team building

Group models such as FIRO and team building go hand in hand. As one can see from figure 1 of the FIRO model a team can take a long, hard path with conflicts to get to the final phase. Or, they can take a shorter path where they simply communicate.

Team building can help the team communicate. There are many ways to communicate with someone, either by words (or simply sounds), body movement or something as simple as eye contact. In general team building activities help with this as they're all based on the team working together.

However, team building can be used for much more specific goals than that. For example, in the belonging phase the team members need ice breaker activities so that they can get a feel for

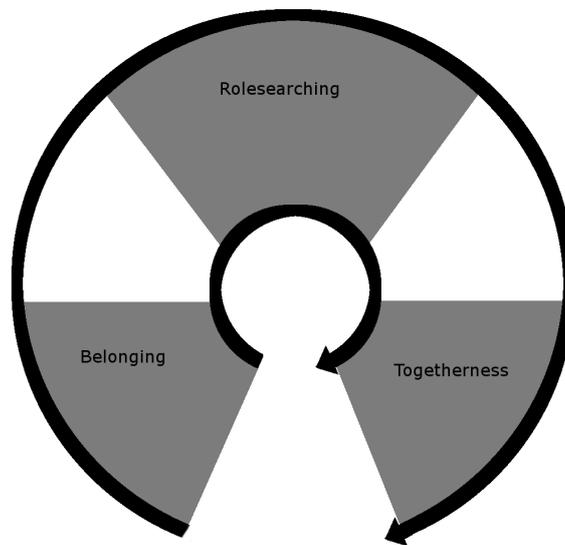


Figure 1: The FIRO model.

the group and if they want to join it. In the role searching phase they need help to communicate in order to prevent and handle conflicts. And also to recognize and appreciate each others differences so that everyone "gets" a role they're comfortable with and like. For that they need activities that shows their differences and preferably in a way that also shows the strength in that. In the last phase, the togetherness phase, the team would need activities that promote responsibility and one way or another helps them toward their goal. [3]

## 2.4 Extreme Programming

Extreme Programming, or XP, is mostly about accepting that people, and people's needs, changes. This is noticeable in software development and to ease the handling of changing demands from customers, XP was created. It uses twelve practices to help developers adapt to change. XP also has five core values that all of it's practices builds on. These values are communication, simplicity, feedback, courage and respect [6].

- **Communication:** honest, regular communication helps the customer to know when the product will be done and developers to know what to develop.
- **Simplicity:** do not plan too far ahead. Do today's work now but leave tomorrows work for tomorrow. The customer's needs might change until then and so might your work for tomorrow.
- **Feedback:** it is important to ask questions and learning from the answers. You have to test the code to see if it works, you have to ask the customer if it works the way he wishes it to. Continuous feedback makes it easier to continually adjust the program.
- **Courage:** you have to be able to make the hard decisions. If something isn't working in the code you need to fix it, if you won't be able to deliver the product on time you need to tell the customer et cetera.

- **Respect:** respect the work and decisions of others. You're allowed to question it, but you have to respect it/them. The customer has to respect that the team does their work properly and the developers has to respect that the customer knows his/her market the best and therefore knows what features are prioritized or not.

## 3 Method

In our project we have read a lot about team building, and about different techniques and activities that can be carried out by a team. We have selected several of these activities and had our team do these throughout the duration of the course. We have then observed and analyzed their reactions before, during and after the activities.

### 3.1 How we chose the activities

When choosing an activity we went on several practical factors: the time the activity took to execute, the possible locations of the activity and how many team members could participate in the activity. Apart from that, we chose activities that would prove or disprove an aspect of our problem statement. We also took into consideration what phase the team seemed to be in and what sort of activities the team needed.

- **The duration time:** based on the theory and the layout of the course we've chosen to have short activities - they want and need to be programming as much as possible in order to finish their work. And since we wanted to try as many activities as possible, it wouldn't be viable if they were long. We therefore focused on smaller activities that can be complete within 10 minutes tops. Preferably 5 minutes. For this we tried different approaches, we tried explaining the activity beforehand, we tried discussing it afterwards and we tried doing neither of those. With this approach we didn't expect everyone to become best friends but hoped they would have time to learn something from the activity.
- **The location:** The activities have been carried out in the computer room, since the Swedish weather in January-February isn't particularly pleasant. This limited the usable space and hence the amount of movement allowed in the activities.
- **The number of participants:** Our team consisted of 14 students. However, previously on this course there have been teams with merely 8 members. This meant that the activities had to be large enough for it to be a challenge for teams with 8-14 members, but not too big so as to make it impossible for them to complete an activity.

Many activities fit these criteria and then we simply went for the one we thought seemed the most fun.

### 3.2 How we observed the team

When observing the team we had beforehand made criteria we wanted to take notes on. These criteria were:

- **XP values:** we wanted to see if they would for example give each other feedback during the activities or see how courageous they were. This we wanted to observe in order to see if the team could be taught XP values through team building.
- **Appreciation:** we also checked if everyone in the team appreciated the activity or not. This because the personalities of the members in our team varied significantly. So an activity half the team enjoyed and the other half hated was not a good activity.

- **Mood:** we wanted to see if there was any change in the mood, or atmosphere, of the team before, during and after an activity. This was actually an accidental criterion we stumbled upon when we noticed a significant difference in the mood after our first session with the team.

## 4 Results

During this study we have made a lot of observations on our own team. Unfortunately we did not have a control team. In this section we will go through our chosen activities and observations.

### 4.1 The ball meeting

**Description:** The ball meeting is done by passing a small ball around the team. Whoever wants to say something has to get the ball first. To get the ball the team must communicate and pass it. The meeting is done when everyone has had the ball at least once and spoken. Every programming session at the start of the day, and after lunch we have had a ball meeting. The idea behind the ball meeting has been to make everyone involved and get everyone to say something about the work.

**Observations:** This has generally been an appreciated activity, though they felt it was somewhat stupid throwing a ball around the first time they did it. It was a great way to start the day and after a longer break such as lunch, since it got them in working-mood. It made them focus on the task at hand and what to do next.

It has also been a great activity in the way that it was good for the team's communication. Everyone in the team had to speak and communicate with one another to get the ball. It helped them getting courage as well. In the beginning some of the team members were quite shy when having the ball and only spoken a few words. But as the project progressed all have become more and more active. They started daring to take place in the team. The activity also helped them respect one another. No one else was allowed to speak when someone had the ball, everyone had to listen and learn to respect the opinions of the person speaking.

All in all it was an activity that benefited the team. As we made sure the activity remained a serious one the result from this activity has been quite good. This was most observable when we compared these meetings with their stand up meetings. The engagement from the team members were much greater during these meetings compared to fast stand ups. The activity might not actually need a ball, but simply require all team members to speak. But by involving the ball, the team members were also forced to engage with each other and communicate on a different level.

### 4.2 Transformers

**Description:** This is a simple team building activity which requires communication and teamwork. The team is supposed to form into different objects such as a specific letter, a word or a zipper. We did both of them. Given what to do the team must then work together to form such object together much like a transformer [4].

**Observations:** It was greatly appreciated both as a fun and bonding activity. Before the start of the activity we had a lot of running around in the room. People had difficulties asking question to each other, hence the running around as they were running towards people they knew. After this activity people were much more calm and focused in their work. More and more they were taking stand up meetings, instead of running. Which means that they also got courage out of this activity. We also noticed it helped them with simplicity. They thought differently after the exercise and solved their programming problems differently than they did before.

### 4.3 Lineup

**Description:** This activity comes in many shapes and forms but the general idea behind it is for the team to stand in line in a certain order, without speaking to each other. For example, the team can stand in a line ordered by year of birth or simply height [4]. This activity was performed twice by our team, both during the first and second iteration, but with different things to order them by. During the first iteration the team ordered themselves by where they are from (ordered from north to south), and height. During the second iteration they were ordered by hair color (ordered from dark to light), shoe size and birthday.

**Observations:** This activity aims on working on the teams communication skills, as it enforces communication, and also to acknowledge one another's differences. It also enforces someone to take a leading role in the team, to help the other team members to line up correctly. Arranging themselves in where they were from was much harder than in height. It was also much more appreciated when it was more difficult. We therefore ran this activity again the next week to compare double check findings. The results were the same. It was also a nice, relatively short break for the team that helped them get renewed focus in their work afterwards.

### 4.4 Take a walk

**Description:** This is an activity where the team walks around in the room, and from time to time the coach yells out an emotion or a well-known character. The team is then suppose to show this character or emotion as they walk around in the room [4]. Examples of these are Gollum (from lord of the rings), needing to pee, anger, laughter, shy. An important aspect of this activity is to make the team members really exaggerate what they are doing.

**Observations:** This activity was greatly appreciated by the team and caused a lot of laughter - depending on the emotion/character. Gollum was very appreciated for example while sadness was not. Mostly appreciated were the activities that were the most embarrassing. All team members took joy in expressing themselves and showed a lot of courage in doing so without hesitation and trusting each other enough to do so. There was a noticeable lightness in the air afterwards.

### 4.5 Thumb-wrestling

**Description:** The team forms a circle and then thumb wrestle two people at the same time [4].

**Observations:** The activity didn't seem very appreciated either as some members of the team finished quickly and got bored just as fast. The more playful members of the team had a lot of fun with it but the team as a whole didn't get much from it. It lowered the focus in the team as some finished quicker than others. As an upside the activity gave the team a break from the work.

All and all no good results came from this activity. The team didn't appreciate it, the mood got more unfocused after the activity and no XP values seemed to pop up during it.

### 4.6 Pass the Mask

**Description:** Someone makes an expression, shows it to the next person and only that person. Then the expression is passed along until the end of the line. This activity is like the whisper game but instead of whispering you are passing on a facial expression (grimace). This way you show how information (whether a whisper or a facial expression) get's contorted the more people it passes [4].

**Observations:** The activity was greatly appreciated and a lot of fun for the team. Everyone in the entire team was engaged in the activity. Just like the activity "take a walk", this was an

embarrassing exercise that was greatly appreciated by all members of the team. It practiced the XP value courage as well as communication.

#### 4.7 Back to back

**Description:** This activity is performed by letting the pairs sit back to back, where one of the two are facing the whiteboard. The other one is holding a blank paper and a pen. Something is then drawn on the whiteboard, which the person facing the whiteboard then explains to the person with the pen and paper. The person with the pen and paper is then suppose to draw what his partner is explaining, trying to make it look as similar as possible. What is drawn on the whiteboard can vary from geometrical figures to abstract art [4].

**Observations:** The activity was greatly appreciated. It made the pair programming afterwards work better and more focused, since we had them do this with their current programming partner. It also helped them with their communication since they had to find a common vocabulary to express what had been drawn. It helped with feedback and simplicity as well. This because they got direct feedback from their partner once done drawing and simplicity because they had to compare the geometries/art with something you could draw quite simply.

#### 4.8 Body parts

**Description:** This activity requires a lot of cooperation and communication, as the team is asked to have a certain number of body parts on the floor. No more nor less. It can be 5 feet, 4 knees and 12 hands. The team then together make sure that the requirements are fulfilled [7].

**Observations:** The activity wasn't quite as appreciated as we would have thought, even though everyone in the time participated. Some of the team members didn't feel like getting their clothes dirty or such, but they still managed to solve all requests as some people from the team did what others did not want to. The team was quite tired at the start of the exercise and maybe feeling a bit stressed out even. But they were able to put it all aside and follow through with the exercise and there was a much calmer atmosphere afterwards.

#### 4.9 Connecting circle

**Description:** During the first start up meeting we played this name game or activity. The team forms a circle and chooses a food that start with the same letter as their own name. The first person then says his or her name and the food. The second person says the first person's name and food, and then his or her own name and food. The third says the first person's name and food, then the second person's and then his or her own. This goes on until everybody has done so [4].

**Observations:** As a first activity this was a good one. It is not too difficult or embarrassing the first time you meet a group of completely new people. It also created laughter and appreciation from them as some foods were really weird. Also, relating a name to a common food is good way to remember a name (in the source its not a food). Some team members still recall and remember each other by citing the food that had been said.

#### 4.10 Broken thermos

**Description:** This activity was not planned, but more of an accident that proved to be a very good one. During our lab sessions we had a thermos with coffee that the team members could take from. During the second iteration the thermos broke, which made it quite difficult to take coffee from it. The handle to the pump had snapped off. The only way to get coffee from the thermos without splashing coffee all over the place was for two people to work together, where one held the cup and the other used both hands in order to pump out coffee.

**Observations:** This made the people trying to retrieve coffee both laugh together and communicate in fun conversation. It was good for the mood though maybe not appreciated as they probably would have preferred their coffee to be acquired more smoothly.

As we found it to be a good exercise for the team, i.e. they started communicating more and it enhanced the mood, we chose not to fix the thermos but instead let the team members work together fetching coffee.

## 5 Analysis

We will here analyze the result. Discuss how suitable the activities are and which are to preferred above others.

### 5.1 Generally

We will start by mentioning that the results from our project can vary from team to team. This is because, as we mentioned before, teams consist of many different sort of people. There are therefore no guaranties that the sort of activities that worked well on our team will work just as well on other teams. However, our team members were very different in personality and we were able to find activities everyone enjoyed. Our analysis and conclusion will therefore strictly be based on the responses from and observations on our team.

Our work in this project has given us a pretty good picture of what sort of activities that are appreciated and suitable for the coaching course. The first observation we made was that an activity shouldn't be too easy. We believe that the feeling of success is not quite as great when the task at hand is performed without any effort. One should therefore choose activities that challenges the team, but is still not too difficult for a larger team to perform. If an activity seems too hard for a whole team, one could always use the fact that its a pair coaching course and split the team up in two groups.

Several of the activities that were more appreciated by the team, were the ones that can be considered embarrassing. These activities were the ones where they had to act ridiculous, or make a funny grimace. These sort of activities was greatly appreciated by the team and allowed them to laugh together. We believe based on our results that this sort of activity is one of the best sort of exercises when it comes to courage and working on shyness.

Some of the activities required some form of thinking before they could be solved. If there is no time constraint, you remove the pressure from solving the task quickly. One should therefore consider whether to add a time constraint to each activity in order to make the team more engaged in the activity. And also to not take up too much of their work time. The time constraint can be a great motivational tool for the team to work hard together to solve a task quickly. If successful, the result from the activity might be that much greater.

Team building did not just prove to be good for the intended purpose. After most of the activities the focus of the team was higher after than it was before it. Observing how the team was working we could clearly see that the activities worked great as a break. This helped to energized their work. Quick short activities just as a break in the middle of the day has therefore also proven to be a great idea. so even if an activity did not have many other great effects it did at least serve as an entertaining break.

### 5.2 The problem statement

To answer our problem statement from the beginning of this paper:

- What activities can be suitable during the *Coaching of Programming Teams* course?

All in all we found that the most appreciated and the activities that they learned the most from were ballmeetings, transformers, take a walk, pass the mask, back to back and connecting circle.

- Does the amount of activities affect the result of them?

Some days we had only one activity and some days we had up to four activities. The results did not seem affected by that. However we didn't try exaggerating it, say have an activity every 30 minutes or so. All we noticed was that the days we had less activities were harder on them as they got less breaks. They got longer coffee breaks but that didn't have quite the same effect.

- Can an activity be used too much e.g. can there be too much of the good stuff?

No, but the difficulty does. So if you do the exact same activity twice it will be easier the second time and might not have as good a result. But if there are new elements to it, as with the ballmeetings where they had to say what was on their mind then and there, the activity can even get a greater effect after a few reruns.

- Can an activity have no effect on the team?

On the team as a whole, yes. Like thumb wrestling, some appreciated it and some didn't but the team as a whole didn't learn anything from it or get new energy.

## 6 Conclusion

To summarize what we've concluded from this; there are many suitable activities out there, and we've only had time to perform a minority of them. Many of them were appreciated and helped the team with important things such as having courage and communicating with each other.

The most important observable parts in our work has been that the number of activities doesn't seem to affect the result, nor does the number of times you run them. It clearly showed that the results are only affected by the activity itself. One must then focus on the execution and what sort of activity it is. One should also keep in mind why they have a certain activity.

To end our conclusion we would like to point out which activities we would recommend for future coaches; namely ball meetings, transformers, take a walk, pass the mask, back to back and connecting circle.

### 6.1 Future work

This project has just been the start of a much greater work. Finding better and more generally applicable activities for all future teams has always been the goal and we only looked at a few aspects and found a few activities. We believe that future coaches can continue our work, find more activities and compare their results and maybe we will find the most suitable group of activities to use in the teams for all future coaches attending this course.

A more concrete example of what one might continue to work on is reflecting with the team after an activity. In 2.1 we mention a debrief and reflection step. We tried getting feedback from the team after each activity, but the responses from the team members were not of much use. At least not more than our own observations already told us. Having a reflection part after each activity we believe could be good for the team, but as time is of the essence in this course, we decided not to do so as we didn't want to take too much time from their actual work.

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10 simple team building methods to get your team headed in the right direction and simplify your business. Your effectiveness as a team leader is determined on your ability to inspire trust. Building Effective Teams. Building effective teams is the most important thing a leader does. Learn how to start this process right from the first contact. What Is Teamwork? What is teamwork? Teamwork in business allows people to use their skills collaboratively, as a team. Teamwork Tips. Teamwork tips to help you toward a more successful team and business. Teamwork in the Workplace. Establish teamwork in the workplace, how to root your team on trust, utilize talents, and create a workplace that performs under pressure and has fun. Effective Team Building. Teams complete tasks as a unit and share the workload. One team member who has complete their work can help another member complete their work. This collaboration allows teams to finish the projects faster and improved productivity. The team building goal helps to increase motivation. Motivation is a powerful tool. One of the primary team-building goals is to motivate the team. It is impossible to stay motivated if you do not believe in your mission and goal. Engagement is a huge part of team building. Use team-building event to build a connection. A team leader must evaluate how team members are working together. Your team should be self-sufficient and perform without you having to be there every step of the way.

2. When to use teams.
3. How can you select the right team for a project?
  - 3.1 Team size
  - 3.2 Overall team composition
  - 3.3 Team member selection and exclusion criteria
  - 3.4 Member recruitment process.
4. What are the usual phases of a team's development?
  - 4.1 Forming
  - 4.2 Storming
  - 4.3 Norming
  - 4.4 Performing
  - 4.5 Dissolving or reorienting.
5. How to begin team building?
6. Responsibilities of team leader.
7. Norms of a team.
8. Team charter: A useful document for team building.
9. How to sustain team effectiveness?
10. Why teams fail?

Team Management: The direction to a group of individuals who work as a unit. Effective teams are result-oriented and are committed to project objectives, goals and strategies. [Source PMDT]

[http://maxwideman.com/pmglossary/PMG\\_T01.htm](http://maxwideman.com/pmglossary/PMG_T01.htm). Team building activities have now become an essential part of company culture. In today's world, if a business needs to thrive, then the first and foremost requirement is having a culture of teamwork within the organization. When all the employees come together and work in sync, we can say that the business is moving in the right direction. Looking for Virtual Team Building Activities for Remote Employees? [Click Here to View our Article!](#)

**OBJECTIVE:** The objective is to let employees get out of their comfort zone and work as a team. It also helps with working with new team members. **TOOLS:** Restaurant/home. **TIME:** 1-2 hours. **PARTICIPANTS:** 8-10. **HOW TO PLAY:** Conducted exclusively at Hubspot, this fun game is an excellent example of team bonding.