Learning Patterns for Group Assignments - Part 1

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Educational Patterns are a good way to capture proven practices in education. Most documented educational patterns are focussing on what teachers can do, and not how the learners themselves can improve during their study. In this work we present the beginning of a pattern language of learning patterns for students which they can apply during group assignments for solving teamwork-related problems. The patterns were mined by 3rd year computer science students themselves, based on their own experience. In this paper we present the following patterns: CLEAR UP QUESTIONS, SHARE EXPECTATIONS, GIVE A FIRST WARNING, FILL KNOWLEDGE GAPS, and CENTRALIZE WORK PRODUCT MANAGEMENT.

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1. INTRODUCTION

Patterns are an often applied and well known method of capturing best practices in a reusable way. Many patterns are collected and widely applied in differing domains as architecture, software design and architecture, and also pedagogy. The latter was mainly influenced by the work of the Pedagogical Patterns Project, which recently published all their work as book [Pedagogical Patterns Editorial Board 2012]. Even though the pedagogical patterns focus on the learners, their target audience actually are teachers only, and not the learners. But in the end, the learner is the most important person in education and the teacher is mainly a facilitator of her or his learning. Even though the pedagogical patterns are of high value, the aspect of what *learners* can do to improve their own learning is not sufficiently reflected by them. We see the need for patterns targeted specifically at learners, as they are necessary in a more holistic view of education.

Takashi Iba and colleagues started to describe Learning Patterns (e.g. in [Iba et al. 2009; Iba and Sakamoto 2011]). These patterns help students to improve their own learning and provide them with ways to influence their own study success. However, the set of patterns described by Takashi Iba et al. is only a subset of relevant learning patterns and not focussed *as a whole* on specific problem areas, which broadens the scope tremendously and therefore makes these patterns less applicable for students with specific problems.

With this work we want to start the collection of learning patterns in a certain domain, namely group assignments given to students during their study. We are collecting a pattern language which:

—is based on the experience of students in higher semesters who already took part in a larger number of group assignments,

—can be given to beginning students in a consolidated and understandable form, and

—is intended to help students during their first group assignments.

In the next section we will describe the context and background of these patterns. Then we present the first identified patterns, followed by a list of all identified pattern candidates in the form of patlets.

2. CONTEXT AND BACKGROUND

In nearly all studies students are working on group assignments which last for a longer period — from a few weeks up to a few months. These assignments are usually given to smaller groups of 3-5 students, but also assignments for student pairs are possible and in some cases also larger groups of 6 or more students are formed. These groups do not necessarily work at the same place the whole time, but most often meet occasionally, either in person or virtually via the internet (using chats, messaging services etc.). However, independent of the groups' size, duration, and physical closeness of the group, there is a chance that problems and conflicts occur during the execution of these assignments. Some of these problems are general teamwork problems, but some are specific to the educational environment.

If students are required to work on a couple of these group assignments with changing group compositions during their study, then they will start to discover ways of sufficiently handling the conflicts and solving the problems — they unconsciously apply *patterns*. This knowledge is valuable especially for beginning students as it helps them to avoid the pitfalls which lead to the problems and conflicts. Making this knowledge available to them therefore would be of benefit for their learning.

One way of providing the students with this knowledge could be in the form of a book, which was succesfully done by Takashi Iba and his group at the Keio University Tokyo [Iba et al. 2009]. They used *Learning Patterns* for preserving the knowledge of experienced learners and published these patterns in a book which was given to beginning students. This helped the students with learning how to learn.

One important aspect is that beginning students are especially interested in the experience of older students. We therefore let a group of older students mine these patterns. In general, pattern mining of learning patterns serves two goals: (1) identifying sets of learning pattern candidates and (2) working on the professional competencies as e.g. Knowledge and Understanding, Applying Knowledge and Understanding, Making Judgements, Communication, and Learning Skills (all defined in the Dublin Descriptors [Joint Quality Initiative informal group 2004]). The results of the first goal are presented in this work, a discussion and evaluation of the second goal is given in [Köppe 2012].

We decided to use a workshop as start for the mining of the learning patterns for group assignments, this workshop is described in detail in [Köppe 2012]. Workshops are a common way for mining patterns [Kohls and Panke 2009], and they make use of induction as information gathering method. The workshop lasted 3 hours and 25 third-year undergraduate students of Software Engineering took part in it. After the workshop the findings were summarized by the author. It helps if students are already familiar with the concept of patterns. Computer Science or Software Engingeering students for example probably have been taught software design and/or architecture patterns. If this is done in an appropriate way — e.g. by applying the pattern language for teaching design patterns [Köppe 2011b; 2011a] — then the students are familiar with the different parts of patterns and their meaning. They might also have applied pattern mining for a technical design pattern if DISCOVER YOUR OWN PATTERN [Köppe 2011a] has been applied.

The results of the workshop were chosen as first set of proposed patterns for this pattern language. We consciously chose to describe the patterns mentioned most often by the students first, as these seemed to be the most important to them. This additionally gave the participating students the feeling that their experience really has been valued and that they implicitly decided which patterns should be documented first. We intend to make these workshops a regular part of our curriculum and will continue to work on these patterns, so more parts will follow. We therefore also documented all other pattern candidates in the form of patlets so that they are available for future workshops.

Many techniques are already described in the literature on team work. However, with this language we intend to create an easy-to-use help for beginning students which is based on the experience of advanced students — preferably in the second half of their study — and therefore have a higher chance of reliability than prescribed study books. It is therefore no wonder that some if not most of the patterns of this language are well known.

Over a longer period we try to cover all relevant aspects of group assignments which will finally lead to a pattern language. This also includes identifying the relations between the different patterns and also categories (of problems and contexts) which can be used for a quick access guide.

Another interesting aspect is that these patterns could partly substitute instructor guidance during team assignments. Oakley et al. found in a study that a high level of instructor guidance on teamwork leads to higher student satisfaction and a higher perception of a course as being effective [Oakley et al. 2007]. We believe that these patterns can serve the same role as guidance from a teacher — or at least substitute this role partly and therefore reduce the teachers' burden.

Teachers can support students in their team assignments in many ways, like ensuring CONTINUOUS ACTIVITY [Köppe 2011c] during their assignment. But some of the problems also occur because of didactical decisions made by the teacher (e.g. TEACHER SELECTS TEAMS [Pedagogical Patterns Editorial Board 2012]) or because of the instructional material provided by the teacher. So the teacher should also be aware of the learning patterns that solve these problems and should guide the students herein where necessary.

3. FUTURE WORK

As stated earlier, this is the first part of an ongoing project. In the future we intend to also work on following aspects:

—Check in what circumstances these patterns are applicable.

—Find categories or tags for these patterns, e.g. group size, assignment duration, physical presence, group constellations, assignment domains etc.

—Make a language map to show the relations between the patterns.

—Identify and describe more patterns.

—Test and evaluate the patterns.

—Introduction of these patterns to beginning students in a booklet.

It is also our intention to involve students more actively in the further mining and describing of these patterns as part of an honours track at our university.

4. THE PATTERNS

The patterns apply to group assignments that take place over a period of time where students are not necessarily all in the same place. Some patterns are applicable for all sorts of group assignments, some are only applicable in certain contexts. This will be reflected in categories, to be determined in future work, and of course in the contexts of the patterns.

The patterns use a version of the Alexandrian pattern format, as described in [Alexander et al. 1977]. The first part of each pattern is a short description of the context, followed by three diamonds. In the second part, the problem (in bold) and the forces are described, followed by another three diamonds. The third part offers the solution (again in bold) and consequences of the pattern application — which are part of the resulting context — and advices for the implementation of the pattern. As last part an example of the application of this pattern is given. References to related patterns are made explicit by writing the names of these patterns in SMALL CAPS.

In this paper we present five patterns: CLEAR UP QUESTIONS, SHARE EXPECTATIONS, GIVE A FIRST WARNING, FILL KNOWLEDGE GAPS, and CENTRALIZE WORK PRODUCT MANAGEMENT.

4.1 CLEAR UP QUESTIONS

A group assignment has been given to you and some fellow students, including a description of what has to be done and what is expected from you.

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Some — or all — parts of the assignment description are vague and not understandable. Starting the assignment under these circumstances can lead to a wrong start of the work and also lead to time loss if things are done the wrong way.

Teacher Specifics. Each teacher has her or his own way of describing and giving assignments. What seems to be clear for the teacher, does not necessarily have to for the student too.

Student Interpretation. Sometimes students have different interpretations for the same description. They don't agree on what the teacher is asking for. It is also the case you can start working on an assignment, and only when you get into it do things become unclear or open to multiple interpretations.

Incomplete Instructions. It is possible that the teacher forgot a part in the assignment description which is important for the students to know.

Inconsistent Instructions. Even though the instructions are complete, it might be that parts of the instructions are inconsistent or conflicting.

Wrong Work Done. Doing work that is not requested by the teacher and therefore also (often) not taken into account for grading is a waste of time. Furthermore, this time is not available anymore for working on the required parts of the assignment.

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Therefore: After the assignment is given, summarize what is clear about the assignment and try to identify what is not. Check this with all team members. If parts stay — or become — unclear, ask the teacher for clarification.

It is always better to ask than to just assume whenever there is uncertainty. Without knowing what is asked from you in an assignment, there is a high chance that what you finally deliver is not sufficient. In some cases you also can get this information from your peer students, in other cases you need to ask the teacher for clarification. Either way, it is recommended to NOMINATE ONE COMMUNICATOR who's responsible for asking the teacher or other peer teams.

In some cases it is not possible to clarify all assignment aspects at one time. In that case start with clarifying these aspects first which you need for being able to start with the assignment and postpone the clarification of the other aspects to a later moment.

After all — or enough — assignment parts are clear to you, you should be able to DELIVER HIGH QUALITY PRODUCTS. Perhaps you have to FILL KNOWLEDGE GAPS of some group members.

In an assignment that comprised both the requirements elicitation and the development of an online banking system, two groups had to collaborate. One group played hereby the role of the customer, while the other group had to analyze the requirements and to build the system (and vice versa). It was not clear to the groups if they should test the system of the other group in their role as users or if they should test the system developed by them, as the instructional material only stated that the developed system should be tested and that a test-report is expected as part of the deliverables. After asking the teacher what exactly was expected from them, they discovered that each group had to do two tests: a system

test of their own system and an acceptance test of the system of the other group, which also had to be documented in a test-report. After this clarification all students knew what to do and they were able to finish this part of the assignment as expected.

4.2 SHARE EXPECTATIONS

You have to work in a group on an assignment and you might not have worked with all group members before.

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Students might have different expectations of the results and the way of working on the assignment. This often leads to conflicts or an inefficient way of working.

Different Priorities. The priorities students assign to school in general and to specific courses and assignments can differ, depending on their interests. It could also be that they have a job beside their study or have a child.

Different Goals. Students might have different goals: some want a good grade, some want to learn a lot, and some just want to pass the course.

Assuming Similarity. If students don't know the goals or priorities of fellow students, they tend to assume that they are identical to their own.

Teacher Selects Teams. Often the teacher determines which students will have to work together on an assignment. As this might be a new group constellation, it is also possible that the students do not know each other's goals and priorities.

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Therefore: Make an opportunity to reflect on the expectations of all group members. Align them, agree on a common set, document them, and have all members indicating acceptance of and commitment to this agreement.

Your own goals and priorities are influencing what you expect from others, but their goals and priorities aren't necessarily matching with your expectations. It is therefore always good to reflect on the expectations of every team member, especially in the beginning of the assignment but also on a regular basis during the assignment. The result will be a common set of expectations, like e.g. we all just want to pass the course, we all go for the highest grade, or we will work most of the time face-to-face. Coming to such a common set requires social skills of all team members, everyone should get attention and all expectations should be respected.

If it shows that the goals or priorities differ, then different roles could be assigned to different team members. In some cases it might also be necessary to FILL KNOWLEDGE GAPS or to ASK FOR INDIVIDUAL GRADING. If you already know the other team members, it still is a good idea to reflect on their expectations and your own, as goals and priorities might change over time.

One result of applying the solution could be a summary in a *Team Expectations Agreement*, made and agreed on by all team members. This could then also be used to prevent students from making claims about what they (thought they) were supposed to do. As this is public, there is a lower chance that students will violate this agreement [Oakley et al. 2004].

Even if all members have the same expectations and goals, it can happen that some members do not fulfil them. If this is detected, e.g. during a regular check, you should GIVE A FIRST WARNING to these members.

A group of students had to work together on a team assignment in a course on model driven development. They hadn't worked together before, and some of them had made some less good experiences during their last team assignment

because of some non-cooperating students. The group therefore decided to look at what they expect from each other. It became clear that they all wanted to learn as much as possible in the project and that they all want to start early working on it instead of waiting until the deadline approaches. They wrote this down in a "team expectations agreement", together with some rules for their group like "if a student is not able to attend a meeting, he/she should notify the group about this one day in advance" or "all team members have to review the deliverables of the team in order to improve the quality and to share the knowledge".

4.3 GIVE A FIRST WARNING

All members of the group did SHARE EXPECTATIONS and started working on the group assignment.

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Some group members are not fulfilling the expectations and goals agreed on earlier which leads to an unbalanced participation in the group and endangers a good assignment completion.

Insufficient Participation. Group members start to come late for group appointments or do not show up at all or do not deliver their work products as agreed or do not execute their agreed on tasks at all.

Team Grading. In group assignments, often the whole group is graded. If one of the group members does not fulfill the assigned tasks, then the whole group will get a lower grade. Because of this often students have to “cover" and fill in what others who do not meet their commitments do not do. This can cause much hard work and discomfort to other team members in order to not endanger their own grade which is based on the team grade.

Friend Politics. It is hard to criticize friends, even though they do not behave in the group as expected. Students find it more often easier to suffer from the misbehavior of their friends than to demand a behavior change. It can also be that students obscure the not-functioning of a friend because of arrangements they made, e.g. regarding work distribution for multiple courses.

Required Manpower. Most group assignments are designed for a specific number of students. If not all students of a group participate as expected, then there is a high chance of not having enough manpower to realize the assignment in the way the teacher intended. Therefore all team members are required to participate sufficiently.

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Therefore: Confront the group member with his or her behavior and explain why it is a problem, thereby ensuring a constructive attitude. Make the consequences clear if the behavior does not improve and make specific agreements on how the student intends to work on the improvement.

Everybody should get the chance to improve his or her behavior, but without a confrontation the unwanted behavior will probably not change! It is important that this confrontation is done with a constructive attitude: the goal is that the team member starts to fulfill all assigned tasks sufficiently. It is therefore also the first step to ask the member *why* he or she is not working as expected. If personal problems are the reason, then it should be discussed how much impact these have on the fulfillment of the assignment tasks. In the case of time problems due to a job it could help to PLAN EXTERNAL WORKTIME. If the problems lie in missing knowledge, then the team should help to FILL KNOWLEDGE GAPS of the student. In other cases it might be a sufficient solution to SPREAD TASKS APPROPRIATELY again, but if the problems are too big the teacher should become involved.

If no relevant problems are the reasons, then the team member should be reminded of his or her commitments and asked to fulfill them. In some cases the pure fact of asking nicely if someone would start working as expected does not

lead to a change in behavior. It is therefore helpful if the consequences of not changing the behavior are communicated as well.

In most cases it is better if the team member is not confronted by the whole team, as this might be overwhelming and often does not lead to a constructive atmosphere. In most cases this is the responsibility of the team leader. If this role is not explicitly used or the team leader is not able to handle this confrontation, you might consider to NOMINATE ONE COMMUNICATOR.

Possible consequences for the student that could be decided on and communicated are:

—the student has to treat the whole group for a coffee if he or she it too late.

—the students gets assigned less important assignment tasks, which also will be reported on the deliverables and might lead to a lower individual grading.

—feedback is provided to the teacher about the members' behavior, which could lead e.g. to the exclusion of the member from the team grading and apart grading of the members' assignments (you can also ASK FOR INDIVDUAL GRADING).

—as last consequence: exclusion of the member from the team.

One member of a team did not show up on the first two meetings of the team. The team leader then told this member that they all agreed on attending all meetings and asked him what the reasons are for his not-attending. It showed that the meetings were planned in times when the student also had to work for his job. So the team leader asked the member to suggest possible meeting dates, also taking his job obligations into account (an application of PLAN EXTERNAL WORKTIME*). As the result the member had no problems anymore to attend all meetings.*

In another team, one student attended all meetings but did not finish all parts of the deliverables assigned to her. The team told her in the third meeting that they will not include her name on the deliverables if she continues with not delivering the results and doing this in sufficient quality. It showed that the student was missing sufficient knowledge of the modeling technique applied in the course, so the team decided to help her to FILL KNOWLEDGE GAPS *by pairing her with another student for some of the tasks and by re-assigning some other tasks so that they match her knowledge level.*

4.4 FILL KNOWLEDGE GAPS

The group assignment requires a certain level of knowledge from all group members so that they can fulfill their assigned tasks. This knowledge might be taught in additional courses or expected to be present. The group already did SHARE EXPECTATIONS.

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One or more members of the group do not have sufficient knowledge needed for working on the tasks assigned to them and cannot contribute sufficiently to the assignment realization. This endangers the overall successful completion of the assignment.

Different Knowledge Levels. As the backgrounds from the students differ, it is possible that some students have more knowledge on the assignment's subject than other group members.

Motivation. The knowledge of the subject often is taught in other courses, this knowledge is also dependent on the motivation of the students regarding these other courses. If students are not motivated to gather this knowledge in the other course, they miss this knowledge in the group assignment too, even if their motivation there is higher.

Missing Opportunity. The design of a curriculum can sometimes lead to situations where students can follow courses and group assignments even if they haven't passed courses which form the basis for the course at hand. If this is the case, then it's hard for students to already have the required knowledge present.

Individual Strengths. Different persons have different strengths, either because of different experiences or different interests. Even if the knowledge and skills of some required techniques are present, their level might be diverging between different students.

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Therefore: Identify the knowledge gaps and help the group members with acquiring the missing knowledge. Let them in the beginning of the assignment execute smaller tasks of the assignment which match their current knowledge status until they grasped all required knowledge.

Make sure that it is clear where the knowledge gaps are, otherwise the first step is to identify these as soon as possible. It hereby helps to make a list of the main important things the students have to know for being able to realize the tasks assigned to them. Then this list can be used for finding the gaps.

After it is clear which gaps to fill, there are several ways of helping other team members to do so:

—If none of the group members has sufficient knowledge, have one member taking the task of acquiring the knowledge — e.g. by doing some research — and then present it to and share it with the whole group (also known as peer teaching).

—If at least one member has the knowledge, then share this knowledge by pairing the inexperienced with the experienced team members and have the *apprentice* learn from the *master*. Pair programming is a good example of how this is realized in software engineering.

In order to assure that while filling the gaps it still is possible for group members to work on the overall assignment, it might be helpful to consider to temporarily SPREAD TASKS APPROPRIATELY.

The knowledge of the group members with insufficient knowledge will increase, at least to an amount which is enough for being a valuable member of the group. However, if the members in question are not showing enough commitment, require an active participation from them and, if necessary, GIVE A FIRST WARNING.

Applying this pattern may cost extra time if assistance by members with sufficient knowledge is required. This can lead to general time problems, so make sure you still can DELIVER HIGH QUALITY PRODUCTS.

A team had to work on an assignment where they were required to design the software architecture of a semi-complex system. They decided to apply some architectural and design patterns for realizing the non-functional requirements of the system, as they were familiar with the application of patterns. One team member stated that he had only heard about design patterns, but did not know in detail what it is. This team member was then paired with a "pattern specialist", who put some extra effort into explaining the patterns to the team member while using them for designing the architecture of the system. The other team-member therefore got an explanation of the patterns, but also immediately saw their application and therefore understood patterns much better after a short period.

4.5 CENTRALIZE WORK PRODUCT MANAGEMENT

Working on a group assignment which includes work products often requires the exchange of these among group members. You already started to MANAGE THE PROJECT and did SPREAD TASKS APPROPRIATELY.

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If the work products are not available in the current versions to all concerned students, inconsistencies and incompleteness can occur as students might work on different versions which later have to be merged.

Unavailability. It is possible that a group member does not have access to all products which she or he needs.

Version Conflicts. If different team members work simultaneously on the same work products, then the chance of conflicting versions is high. Solving these conflicts costs extra time.

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Therefore: Make all work products available via one centralized place and keep the work products up-to-date.

If this central place is available to all group members, then all members have access to all work products too. By keeping the work products up-to-date and working only with the current versions minimizes the chance of version conflicts. You should also USE A STYLEGUIDE to ensure that not only everything is always in the latest version, but that it is also consistent qua e.g. layout or format.

Examples of systems which you can use for managing your work products are Dropbox, SVN, or GIT.

A team had distributed the tasks that needed to be done in the team. Some members had to work on different parts of the same report, and it showed that after sending new versions throughout the group, some of the already described parts of the report were missing or in an older version. They decided to ensure that there is only one version and created a dropbox folder that was shared by everyone. This way, all team members automatically got the latest version of the report after some changes have been done to it. As result, they were able to deliver the completed report on time and including all required parts.

5. IDENTIFIED PATTERN CANDIDATES

In this section we present the other pattern candidates which emerged during the workshop in the form of patlets. The patlets are documented by first stating the name, followed by the problem statement and, separated by three diamonds, the solution statement. They were mainly left as described by the students, some had to be translated from Dutch into English.

5.1 **DELIVER HIGH QUALITY PRODUCTS**

If the work product/s delivered on the date of the deadline are incomplete or not of sufficient quality regarding the defined requirements, then the grading of these products will be low.

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Therefore: Start working on the assignment immediately and keep track of the progress of the assignment. Adjust the planning so that the most important assignment parts can be finished on time and in sufficient quality. Distribute the tasks evenly. Make the planning so that you have sufficient time to check the quality of the deliverables before delivery according to defined criteria.

5.2 **RESOLVE CONFLICTS**

There is a clash between group members, which has negative impact on the motivation and participation.

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Therefore: Identify the cause of the clash together with the concerned group members — and maybe some outside person like the teacher — and look for a solution where both parties can live with.

5.3 **SPREAD TASKS APPROPRIATELY**

One person takes too many responsibilities and tasks, which is a bottleneck for the success of the whole group and leaves others with less chances to apply their knowledge or learn new things.

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Therefore: Spread all responsibilities and tasks as appropriately as possible between all group members, take their knowledge levels and other constraints into account.

5.4 **SUPPORT THE LEADER**

The group leader — either chosen by the group or assigned by the teacher — does not function as expected and the management of the group is insufficient.

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Therefore: Address the issue by the group leader and start to support him or her if necessary. If this does not work, reassign the role of group leader to another member which is chosen by the whole group.

5.5 **KEEP TEAM SPIRIT**

The end of the assignment is in sight, but the motivation and inspiration starts to decrease.

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Therefore: Don't work too long and make regularly breaks. Finish the assignment together as group with something nice you can look forward to, like going out for a beer.

5.6 **FOCUS THE DISCUSSION**

Discussions over certain problems take too long and do not lead to necessary conclusions, which hinders the on-time delivery of qualitative sufficiently products.

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Therefore: Stay inside the scope of the problem, write down the results and regularly check the relevance of the discussion.

5.7 **IMPROVE THE PRESENTATION**

Often a group assignment is finished with a final presentation, which also counts for the grade. If this presentation — or parts of it — are given by someone which is not good in presenting, the grade for the whole group could be influenced negatively.

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Therefore: Let group members which are not that good with presentations practice it or provide them with a proven presentation process.

5.8 **FOCUS ON SERIOUSNESS**

Working in a group can be fun and the atmosphere is often informal. But if it only stays informal then there is a chance that the members do not sufficiently work on the assignment.

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Therefore: Make sure that it is clear for all group members that things have to be taken seriously in order to make things happen.

5.9 **PLAN EXTERNAL WORKTIME**

Some team members might have a job beside their study, and working on the group assignment and the job simultaneously is distracting. Such a group member is of less value for the whole group.

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Therefore: Plan breaks on a regular basis which offer the group member to focus on the job outside of the group assignment. During the rest of the time the group member can focus on the inside of the group assignment.

5.10 **NOMINATE ONE COMMUNICATOR**

Sometimes different groups have to communicate during a project or a group has to communicate with a teacher very often. If everybody communicates with everybody then there is a high chance of inefficient and vague communication, which hinders all groups in their work.

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Therefore: Determine fixed communication moments and give one group member the responsibility for communicating with the other teams or the teacher.

5.11 **GIVE CONSTRUCTIVE FEEDBACK**

If things go wrong, but are not addressed in the group. then the chance that things improve is small. But giving and receiving feedback is difficult and group members are possibly afraid of giving feedback or do not handle it in a good way.

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Therefore: Give feedback in a constructive way, ideally in the form of suggestions for improvement. Do not immediately start to defend yourself if you are criticized, but try to be open for the feedback and suggestions for improvement.

5.12 **KEEP MOTIVATED**

Sometimes the motivation can decrease during the execution of a group assignment. This often leads to insufficient participation and bad quality deliverables.

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Therefore: Try to get tasks assigned which you are interested in or switch (temporarily) to another role in the group. If the assignment is going to end soon, KEEP TEAM SPIRIT by plan something you can look forward to like going out for a drink.

5.13 **OWN YOUR WORK**

If work products are publicly available to all groups, then there is a chance of plagiarism. This often results in not passing the assignment for both involved parties.

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Therefore: If you encounter that someone copied (parts of) your work products, immediately inform the teacher and confront the other party with the fact.

5.14 **ELIMINATE BOTTLENECKS**

An assigned task is too big or too complex for the assigned members, they are not able to finish it on time and/or in sufficient quality.

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Therefore: Reassign the tasks so that everyone in the group can work and that the project is progressing smoothly.

5.15 **MANAGE THE PROJECT**

Without knowing who is working on what tasks and work products and what the status is of these it is hard to judge if everything is progressing as planned and the project can be finished successfully.

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Therefore: Manage your project by keeping track of who is assigned to what tasks and work products, and what the status of these is. Come in action if things are not progressing as planned.

5.16 **ASK FOR INDIVIDUAL GRADING**

Some members of the group did not contribute as much to the group results as other team members, but this is not reflected in the groups' grade.

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Therefore: ensure that the different degrees of contribution are taken into account by asking for (at least partially) individual grading.

5.17 **USE A STYLEGUIDE**

The team will get a lower grade if the deliverables are inconsistent in terms of style, as the teacher expects deliverables from one team and not from individuals.

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Therefore: Define a styleguide or decide on an existing one and use this consequently throughout the whole assignment.

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