

# Instructor's Manual: Proactively Ensuring Team Success (PETS Process)



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## Foreword

**Instructor's manual:** Proactively Ensuring Team Success (The PETS Process)

*A guide to effective student project teams in Higher Education.*

Every student, and every academic, has a horror story to tell about student teamwork, from the social loafer that caused the team to pull an all-nighter, to the sad discussion with a student who has failed a course due to a lack of understanding of what was required. But teamwork is an essential graduate skill and hence every student in higher education is almost guaranteed at least one team project each semester. This makes it imperative that we work to ensure that projects are correctly designed and scaffolded, and students supported such that they can achieve course learning objectives as well as develop their teamwork skills.

This manual provides a step-by-step guide to creating effective, productive and happy student teams. It has been tested and evaluated and continuously improved several times across a range of fields of study since 2002, when I started looking for ways to address team dysfunction and social loafing that appeared to be an inevitable part of student project teams. The result is an approach to student learning based on project teams which appeared to address group dysfunction and social loafing, with the potential to improve performance.

It is important to note that the PETS process is not a quick fix – in my experience, nothing that works well in addressing a complex and often wicked problem ever requires less than hard work. Nor is it a substitute for content. Instead, it is an overlay requiring good project management and a reasonable investment of time.

Good luck!

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Thank you all! We make a great team.



## Glossary

Term	Description
<b>Assessment (Diagnostic, Formative, Summative and Hurdle)</b>	<b>Formative</b> assessment is used throughout semester – it gives feedback to the student that allows them to improve and learn from mistakes; it may or may not contribute to final marks. <b>Summative</b> assessment is the assessment at the end of a course or module; it is designed to evaluate what students have learnt and not specifically to aid their learning. <b>Hurdle</b> assessment is that which must be achieved to pass the course (e.g. a Pass/ Fail quiz).
<b>Course</b>	A subject or unit of learning.
<b>Learning Management System (LMS)</b>	A website where all team resources and forms can be electronically stored for access by students, mentors, and instructors. If possible, this site should also contain a discussion board, and individual team pages that allow team members to contact each other and to post project work files. Blackboard and Moodle are LMS examples.
<b>Deliverables</b>	Pieces of assessment which have a due date and a specified form (e.g. report, oral presentation, poster, web site etc.). Good practice requires that there also be a rubric supplied to students to allow them to understand what is required and for grading purposes.
<b>Dysfunctional team</b>	A dysfunctional team is a group in which the members do not work effectively together towards a common goal. (Foundation Coalition, 2001).
<b>ESL or NESB</b>	English as a Second Language (ESL) – those international students for whom English is not their first language. ESL students may also have a different learning culture. Also known as NESB (Non English Speaking Background).
<b>Free riding</b>	See ‘Social loafing’.
<b>Gantt chart</b>	A project management tool which shows task timing and resource allocation.
<b>GPA (UQ Group Peer Assessment)</b>	An online peer assessment tool that manages the collection of student evaluation and the calculation of PAFs. GPA is based on WebPA the open source program generated by The University of Loughborough. If you would like to use GPA for summative or formative peer assessment, and team diagnosis, contact the UQ eLearning team on <a href="mailto:help@elearning.uq.edu.au">help@elearning.uq.edu.au</a> or go to: <a href="https://elearning.uq.edu.au/guides/group-peer-assessment#1">https://elearning.uq.edu.au/guides/group-peer-assessment#1</a> .
<b>Graduate attributes</b>	Generic and discipline-specific skills that all students graduating should have. Each teaching establishment is likely to have its own list of graduate attributes. Also known as graduate capabilities.
<b>Group vs. team</b>	The use of “group” and “team” indicates the difference between individuals working independently on the same task (group) and individuals working inter-dependently on the same task respectively (team). (Pimmel, 2003)

Term	Description
<b>Individual review for mentor meetings</b>	Feedback completed by each student prior to each mentor meeting which allows mentor to facilitate meetings based on team needs. Other students do not view this feedback.
<b>Learning Objectives</b>	What we want students to be able to do when they have completed the course. This list of newly learned knowledge, capacities and capabilities are the learning objectives. A statement of learning objectives is always the starting point for any curriculum – whether at course (i.e. unit or subject) or program (i.e. degree) level, learning activities are then structured around the required knowledge, attributes, and skills.
<b>Looping (or Looped knowledge)</b>	Looping is the process of using student information, feedback or assessment from previous courses and lecturers.
<b>Mentor meeting</b>	A formal session to provide technical, team and time management input. Sessions can last 30 – 60 minutes and can be accompanied by some form of team assessment.
<b>MOOC</b>	Massive Online Open Course which includes videos, activities, readings and problems sets.
<b>TEAMS101x</b>	A free MOOC from UQx/ EDx containing information on team work. It includes the reasoning behind students working in teams, a trouble-shooter for dysfunctional teams, and templates for good team practice. It can be used as part of course assessment (as a SPOC) or as a student resource (as a MOOC).
<b>Peer assessment factor (PAF)</b>	A factor derived from peer assessment that may be applied to the team mark to calculate an individual mark. The PAF provides an instantaneous assessment of a student's input into the team and hence can also be used as a diagnostic tool. Students complete electronic forms anonymously to record their perceptions of the comparative input of their team mates.
<b>Social loafing</b>	Social loafers are also called free-riders. "Free riding is a form of social loafing seen in a group when one or more members slacks off and 'rides' on the extra efforts of their co-workers." (Walker and Angelo, 1998). There are many reasons for social loafing and not all perpetrators are trying to get a 'free-ride'.
<b>SPOC</b>	Small Private Online Course that can be offered within a course with assessment and learning analytics made available to the instructor.
<b>Team assessment mark (TAM)</b>	A mark that can be applied by the mentor to each of the teams based on their communication, resolution of differences and conflicts and overall performance as a team.
<b>Teams101x</b>	A free online MOOC (Massive Open Online Course) providing teamwork training, resources, and various activities available at: <a href="https://www.edx.org/course/working-teams-practical-guide-uqx-teams101x-2">https://www.edx.org/course/working-teams-practical-guide-uqx-teams101x-2</a> . The UQx team can make this a SPOC (contact <a href="https://uqx.uq.edu.au/">https://uqx.uq.edu.au/</a> or <a href="mailto:uqx@uq.edu.au">uqx@uq.edu.au</a> )

## Stage 0: Teamwork and Students

### 0.1 Why do we do it

Learning to be a functioning, effective and contributing member of a team means that students graduate with enhanced personal and professional skills. These attributes contribute to a higher demand for their services, better remuneration, and greater kudos for their *alma mater* in the inevitable league tables generated from the various forms of monitoring graduate outcomes.

Therefore, higher education programs aim to deliver teamwork skills as part of a set of “graduate attributes” or generic skills that will increase their employability upon graduation. For example, at The University of Queensland (UQ), at Bachelor level, teamwork is required as a graduate attribute under three major headings<sup>1</sup>:

1. Effective Communication:
  - ‘The ability to interact effectively with others in order to work towards a common outcome.’
  - ‘The ability to practise as part of an inter-disciplinary team’
2. Ethical and Social Understanding: ‘A knowledge of other cultures and times and an appreciation of cultural diversity.’
3. For courses with significant research component - Independence and Creativity: ‘The ability to undertake supervised research, including the design and conduct of investigations, in a systematic, critical and evidence-based manner, as an individual or as a member of a team.’

The very fact that teamwork is split across three categories indicates just how complicated it will be to ensure that our graduates develop teamworking skills.

Furthermore, in the learning context, team projects can facilitate peer-assisted, cooperative, and collaborative learning<sup>2</sup>. The literature and my experience tell us that teamwork is good pedagogy in that it provides many ways for students to learn content, and to make connections thereby increasing their satisfaction.

Finally, team-based projects enable tasks of greater scale and increased complexity, with the attendant deeper learning to be achieved.

So, for all these reasons, we engage in the practice of establishing developing, mentoring, and assessing student teams.

### 0.2 What can go wrong?

In most cases, the use of teams to achieve learning outcomes objectives and increase teamworking skills is successful. However, a small number of teams perform poorly, and individuals within these teams do not achieve the learning objectives. They are usually what we term a dysfunctional team, one in which the members do not work effectively together towards a common goal (Foundation Coalition 2001).

Dysfunctional teams often become apparent only at the end of semester when it is too late to rectify the problem; major deliverables are of poor quality, both in terms of presentation and technical correctness, and result in low marks for the members of the dysfunctional team.

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<sup>1</sup> <http://ppl.app.uq.edu.au/content/3.10.05-graduate-attributes#Procedures>

<sup>2</sup> There are subtle differences between these pedagogies but all are predicated on the fact that people learn better in teams than by themselves as they can capitalise on others' knowledge and abilities. Generally collaborative learning is accepted to be the team working together on a task, whereas cooperative learning involves individuals working on subtasks and the team pulling the results together. Peer assisted learning relies on one student having the necessary knowledge or skills and 'teaching' the other student. This is generally regarded as win-win, as one student learns, and the other gains a greater depth of knowledge having had to explain it to someone else.

*“There is a delay between dysfunction and feedback and if the appropriate proactive steps are not taken to reduce this delay, then this can cause failure which is only seen at the end of semester.” Jones (1996)*

Two major causes of dysfunctional teams are social loafing, and unresolved conflict.

1. Social loafing, “the tendency for individuals to reduce their own personal input when performing as part of group” (North, Linley & Hargreaves 2000: 389), is one that I often see and, in my experience, students find it difficult to report social loafing as they tell me the social loafers are their friends or people that they will need to interact with for the remainder of their degree program.
2. The literature suggests that there can be two forms of conflict within a team: task and relational conflicts. While for several years it was thought that task conflict in teams could be productive, and that only relational conflicts were destructive in relation to team performance, some research suggests that both are destructive (De Dreu & Weingart 2003). Thus, this manual provides instruction on team allocation, task definition and team mentoring and monitoring to keep teams on track in terms of both tasks and relationships.

Table 1 details some of the occurrences that I have witnessed; I’m sure that you recognise some of these scenarios.

Table 1: Evidence of Dysfunctional Teams

Problem	Occurrence
<b>Unresolved conflict</b>	A student reported that team discussions about what should be included in the final deliverable had broken down and some members had begun to become aggressive.
	One team member submitted a separate report as she felt that her team members were not listening to her, nor correctly completing requirements.
	One team member became obsessed with another to the extent that outside counselling was required.
	A student gave a team member, who was a good friend, an undeservedly high peer evaluation.
	A sub-team colluded on an evaluation for a member who they did not agree with.
<b>Social loafing</b>	A randomly allocated group of students lacked a natural leader and performed poorly through low-quality work and missed deadlines. No responsibility was taken by any member of the group for their poor performance.
	A student complained about a social loafer after the course was completed. He did not report any concerns when they could have been dealt with.
	One student complained about social loafing within his team to his parents who then contacted the relevant academic within the department.
	Many students do not report their poorly performing team mates, as they want to avoid conflict.

### 0.3 What can we do about it? The PETS Process: An overview

Without a systematic approach to supporting student teams, students often try to resolve conflict to the detriment of subject learning objectives when the situation is irreconcilable without outside intervention. The PETS process therefore provides a systematic approach to managing student teams which addresses group dysfunction and social loafing, and has the potential to improve both individual and team performance. It engages academics in:

1. Preventing poor team performance through the use of:
  - A structured and purposeful process of allocating individuals to groups;
  - Explicit student training in group processes and provision of a self-help toolkit;
  - Tailoring features of the project task so it can be more effectively managed by teams;
  - Tailoring assessment type;
  - Assessing individual performance through peer evaluation as both formative and summative assessment;
  - Assessing of team performance as a summative assessment criterion; and
  - Communicating of strategies for social loafing.
2. Diagnosing team dysfunction through:
  - Mandating individual reflection;
  - Mandating team reflection;
  - Mandating mentor sessions; and
  - Mentor reflection and observation.
- Helping cure team dysfunction by:
  - Mandating individual reflection;
  - Mandating team reflection; and
  - Tailoring facilitation of mentor sessions.

The PETS process has several stages and these are outlined in the remainder of this document:

STAGE 1: Before Start of Semester (Setting Up)

STAGE 2: Start of Semester (Starting Out)

STAGE 3: During Semester (Along the Way)

STAGE 4: End of Semester (Getting Over the Line)

STAGE 5: Reflection and Review (Where have we been?)

While you need to engage with all five stages, not all the steps within each stage need to be followed and you should cherry pick those steps that fit your courses as the value of the various stages and steps may vary markedly with the learning context. I have also included some forms at the end of the document, and, if you decide to use them, you should edit them to suit your context.

## 0.4 FAQs

### ***How does the PETS process work across a degree program?***

I have found great advantage in passing knowledge of what has gone before to my colleagues who teach the same cohort in later years. This information includes those students inclined to leadership, those inclined to social loafing, those who have language problems, those who have confidence problems, as well as those students who have experienced personal conflict and should not be placed in the same team again.

However, as students progress through their program of higher education, I have found that the PETS process can be relaxed and not all steps need to be offered. For example, in later years, students may be allowed to self-select teams as their team skills should be advanced, and perhaps the peer assessment factor could be offered as a tool to prevent social loafing and mentor meetings could be on request and structured by students. This approach allows for greater maturity and experience with teamwork and is seen as a natural progression in teamwork skill acquisition.

The good practices mandated in early years, such as some sort of team role inventory analysis in early-semester project-scoping statements along with an outline of team responsibilities, should still be encouraged.

*The relaxation of the full application of the PETS process to later years has not prevented teary sessions with student teams in my office sorting out deep-seated team conflict. The difference has been that these meetings have been at the students' request when all their efforts and learnt teamworking skills have failed to eliminate the problem.*

### ***What about leaders and the PETS process?***

I am often asked what the PETS process offers in terms of leadership training. My observation is that while the PETS process has not specifically been set up to train leaders it allows students:

- who are naturally leaders to recognise what they are doing, gain further insight into what is needed to manage a team and to develop their leadership qualities;
- to make an informed decision about who the team leader should be and understand the various models of team leadership; and
- who are not natural leaders to have an appreciation of leadership and for them to, by watching and reflecting on the leader's actions, understand what is necessary to manage a team.

*Often, I construct the team project so that there is capacity for each member of the team to claim a specific responsibility and thus ensure that they gain some experience of leadership. This is easily done by specifying several deliverables (e.g. report, prototype, poster, oral presentation), and activities (e.g. meeting organisation, workshop, or laboratory coordination).*

### ***What about my cohort? They are different.***

In discussions, some colleagues have suggested that the PETS process would not suit their course delivery and that they disagreed with the methodology. The suggestion is that the characteristics of their cohorts make the processes we use unnecessary. This may be so.

For example, postgraduate students have completed a first degree, have high entry scores, and have a considerable financial investment in their studies. Such a cohort may have no social loafers which may diminish the need for peer assessment, and such a cohort brings a level of maturity and experience such that purposeful team selection and mentoring may not be necessary.

It is worth reiterating that the PETS process may not apply in all aspects to your cohort, although elements could be offered as a tool if applicable. We therefore invite you to use only what you think will be useful for your course.

***Where do I find the time to implement PETS?***

The PETS process is not a quick-fix. It requires considerable time to implement and of course, the larger the student cohort, the larger the time input.

However, I would argue that the increased time input is balanced by the benefits of implementing PETS. Not only do students achieve their learning objectives and gain team work skills, but the number of complaints about dysfunctional teams is reduced.

I suggest that you choose and brief your teaching team well, and thereby share the workload hopefully enthusiastic and competent teaching staff.

Fortunately, technology has allowed us to automate things such as the peer assessment process, and documentation of activities. However, we still recommend that you budget for a greater time commitment.

## Stage 1: Setting it up

*The purpose of this stage is to ensure that resources are ready before semester begins.*

STEP 1	Define your learning objectives and map against graduate attributes
STEP 2	Design assessable team project(s) which deliver these objectives
STEP 3	Recruit and brief teaching team
STEP 4	Allocate students to teams
STEP 5	Prepare resources

### Stage 1, Step 1: Define your learning objectives

Learning objectives are simply defined as what you want the student to know, to achieve, to be capable of, and/ or to be able to do when they have completed the course. Many higher education providers require learning objectives to be mapped against graduate attributes to ensure students not only have knowledge and understanding of the discipline or field of study, but also know how to use knowledge in the field.

Learning activities must therefore be designed to allow students to develop skills contextually within their discipline.

The example shown in Figure 1 is for a first-year compulsory engineering design course for which 60% of assessment comes from a team project. Although only one of the eight learning objectives specifically addresses teamwork, this is mapped across several graduate attributes.

*Figure 1: Example Learning Objectives and Graduate Attribute Mapping*

Learning Objectives (Abridged)	
<ol style="list-style-type: none"> <li>1. Engineering Design: demonstrate ability to approach a complex and realistic engineering design task through: a. clarification of the scope of the task; b. development of project requirements including data collection and analysis of previous relevant work, ...</li> <li>2. Information Management: locate, evaluate, use and cite information ...</li> <li>3. Communication: demonstrate ...</li> <li>4. Project Management: demonstrate ...</li> <li>5. Team Work: work effectively in an engineering team, identify the characteristics of effective team work and critically evaluate personal and peer contributions to team processes;</li> </ol>	
...	
Graduate Attribute mapping (Abridged)	Learning Objectives
B2. The ability to interact effectively with others in order to work towards a common outcome.	4, 5, 7, 8
C3. The ability to generate ideas and adapt innovatively to changing environments.	1, 5, 7
E5. A knowledge of other cultures and times and an appreciation of cultural diversity.	1, 5, 6, 8

## Stage 1, Step 2: Design assessable team project(s)

### i) The project

A good team project is designed to increase knowledge and understanding of the discipline or field of study, encourage collaborative learning, and enhance team work skills. In addition, it should engage students in activities and learning that they actively enjoy.

The major facets that should be considered when designing a team project are outlined in Table 2.

Table 2: *Design of Team Projects*<sup>3</sup>

Facet	Reason
Sufficient depth and complexity to engage all students	Students must not have to fight for work – it is better if there is slightly more than the team can handle.
A variety of assessments (e.g. written document coupled with a poster or oral presentation)	This allows distributed leadership in part and thus each student must engage with the learning objectives of the course.
Sub-tasks that can be completed by an individual or pair, and that may attract an individual mark, but that require synthesis for inclusion in the final deliverable(s)	As above, this allows all students to lead a section, and requires engagement with learning material by the whole team.
A final activity or deliverable that requires sub-tasks and individual sections to be integrated, analysed, and discussed by the team	This facilitates collaborative learning and allows team work skills to be developed. Without this synthesis, the students are a group and not a team.
Milestones/ Schedule for mentor meetings	Milestones aid time management and can be used to monitor team progress and, if paired with mentor meetings and peer assessment, diagnose any dysfunction.
Hurdle assessment administered to the individual student (e.g. pass/ fail quizzes)	Hurdle assessment works well against social loafing in that it requires all students to engage with learning objectives.
Connection with the relevant industry and authenticity	Students are more engaged with authentic tasks that they can see have real world application.
An element of competitiveness	This aspect can add a degree of fun and increase engagement. It may be as simple as a final poster session with a prize for the best.

### ii) Team size

I find it easier to set the size of the team when I have scoped out the project and what I want the students to do. However, generally I have found that:

- students feel that teams of seven or eight (or greater) are too large to manage in terms of task sharing, communication, and effective decision making;
- there appears to be no difference in the output and functionality of teams of one fewer than the average number specified (e.g. if the project is designed for six students, a team of five students will usually

<sup>3</sup> If you would like to see team projects that I have designed for engineering students, feel free to contact me [l.kavanagh@uq.edu.au](mailto:l.kavanagh@uq.edu.au) and I will be happy to explain further and/ or share resources.

perform just as well) as with a reduction in team membership comes a commensurate reduction in the amount of effort required to manage the team; and

- smaller teams of around three seem to work better in later years whereas teams of six work very well for first year courses.

Table 3 outlines other factors that should be considered when setting the team size. For completeness, I have included common methods of team formation in Appendix A.

Table 3: Factors Influencing Team Size (Adapted from FDTL, 2003)

Factor	Comment
Size of cohort	If the cohort is large, it can be tempting to increase the team size and thus reduce marking. However, as previously stated, we have found teams of seven or at most eight to be the practical limit for effective teams.
Complexity of task	The team must manage itself, its members, and the task. If the task is very complex then this may not leave time or energy for managing the team. However, mentoring ( <a href="#">Stage 3, Step 2</a> ) and judicious design of the project ( <a href="#">Stage 1, Step 2</a> ) can help the teams with this and thus lift this restriction.
Roles in teams	There may be roles that need to be performed. This can be particularly important in multi-disciplinary projects where it may be desirable to bring together a combination of skills/ experience. Team selection should still ensure a leader is present in each team ( <a href="#">Stage 1, Step 4</a> or <a href="#">Stage 2, Step 3</a> ).
Team skills of members	One of the requirements for a successful team is that its members can work well together. An inexperienced team, working on a complex task, probably needs to be smaller rather than larger. However, mentoring ( <a href="#">Stage 3, Step 2</a> ) is designed to minimise this restriction.
Ease of meeting	For the team to function it must be able to meet. It is usually harder to arrange a meeting for a large team than a small one. It is good to purposefully build some team time into the semester's schedule to partially ameliorate this restriction. Virtual meetings are possible but I've yet to see them used well.

## Stage 1, Step 3: Recruit and brief your teaching team

### i) General

Your teaching team must be on the same page as you when it comes to proactively ensuring that student teams are successful. I recommend that you work with people who have a similar pedagogical philosophy to you, and that you plan to catch up with them regularly throughout the semester to discuss problems and to get second opinions where necessary.

### ii) Mentor models

In my experience, one of the most important aspects is to establish the type of mentoring that is to be offered to the students. Typically, mentors will offer guidance in matters of the team, technical aspects, and time management but the depth to which this guidance is offered needs to be agreed prior to semester beginning.

*I have experienced differences of up to 10% in the final marks of student teams with different mentors, when the depth of mentoring to be offered has not been fully understood by my teaching team. Students with mentors who review their team's work before it is handed in and suggest methods of solution will often score higher than those with mentors who do not review work prior to submission and who adopt a model of encouraging the students come to the final decision based on discussion of options.*

The following models are offered and selection should be made on the maturity and specific requirements of the student cohort, and the assessment task.

- **Mentor as Parent:** The mentor leads the team's discussions, ensures tasks are being completed to the required standard, directs the team to information that the team may have overlooked, and reviews all work before it is submitted for grading.
- **Mentor as Devil's Advocate:** The mentor is integral to team discussions and acts to bring the team's focus to aspects that require resolution. They will not necessarily offer direct answers but rather encourage the team to arrive at a correct solution themselves. Aspects that the team has not considered will also be raised by the mentor.
- **Mentor as Expert Witness:** The team directs all meetings; only subjects raised by the team are discussed. The mentor answers questions directly and does not raise uncertainty.
- **Mentor as Polymorph:** The mentor takes on any of the above roles as required by the team.

The model of 'Mentor as Team Member' does not coalesce with good pedagogy and hence is not recommended here. In this model, the mentor becomes part of the team and aids students with their tasks, thus student learning objectives are less likely to be achieved by the students. This model may be more suited to postgraduate teams.

Use Table 4 with your teaching team to agree the type of mentoring to be offered and thus offer equity to students no matter the mentor.

Table 4: *Mentoring (for Agreement)*

Aspect	Level 1: Parent	Level 2: Devil's advocate	Level 3: Expert witness
Meetings			
Structure	Set by mentor	Mentor agrees with team	Set by team
Chair	Mentor	Team member	Team member
Technical details			
Missing information	Mentor supplies	Mentor leads discussions such that team discovers omission (or not)	No input by mentor unless directly asked
Incorrect information	Mentor identifies, corrects and explains	Mentor queries assumptions and outcomes	No input by mentor unless asked directly
Review of work	Mentor reviews work before submission	Mentor reviews only as requested by students	No review
Decisions	Mentor indicates best way to solution	Mentor discusses various options; team decides	Mentor can provide opinion if asked for
Management			
Team	In all cases, the mentor must ensure that the team remains functional. It is best to always teams the decision about whether to deal with any dysfunction at the mentor meeting or later by themselves (see <a href="#">Stage 2, Step 2</a> )		
Time	Mentor to ensure that team is on time and will complete work	Mentor raises critical path issues but leaves team to decide time management	No input by mentor unless asked directly

## Stage 1, Step 4: Allocate students to teams

Everyone has their own way to allocate teams, from completely random, to student choice, to teams based on students' availability for meetings. However, several problems may arise if teams are not purposefully formed. Some of the more obvious ones are:

- teams may be formed that have no leader – this becomes apparent when the first deliverable is due and has not been completed or is of poor quality. In such teams, no one takes the responsibility for getting the job done on time and in budget. If you query the students in leaderless teams about their failure, not a single student will meet your eye – most will look down at their feet;
- teams with too many ESL (English as a Second Language) students will be formed. This is problematic on two fronts:
  - domestic teams will support, teach, and encourage a single ESL student in their midst, as long as they are seen as making an effort, but any more than this and the issue of the language and cultural difference becomes too great especially when a report or oral presentation is due; and
  - students with a common language will often revert to this to communicate and this is not helpful for their future studies, nor does it guarantee that they have a good grasp of what is asked of them;
- teams without a good balance of males and females will be formed and whilst no bad thing may come of this, we have found that each gender has its own positive attributes, experiences, and requirements to bring to a team; and
- similarly, teams may not have a good balance of a particular skill, ability, or knowledge.

Therefore, the PETS process argues strongly for purposeful selection of teams as per Table 5.

Table 5: Considerations for Purposeful Team Selection

Aspect	Source	Comment
At least one leader	Looped from past courses (e.g. a high peer assessment factor), a leadership preference or result from a Team Roles Inventory.	Do not confuse achievement with leadership: high achievers are not necessarily good team workers and hence may not be good leaders.
A diversity of students in terms of cultural background and English as an additional language.	Institutional database	Where possible an even spread of students with English as an additional language is preferred.
A minimum of social loafers	Looped: a low peer assessment factor) or through conversation with previous lecturers.	I have found no reliable way to identify these students in their first semester at university.  Low achievers have the potential to become valued members of teams if teamed with good leaders and therefore cannot be assumed to be social loafers
A gender balance	Institutional database	In courses such as engineering with a high percentage of male students, I ensure teams do not have a single female.

Aspect	Source	Comment
A balance of required knowledge and skills	Institutional database: courses studied and performance in these courses	This could be anything from ability to solve a partial differential equation, to disciplinary knowledge, to the ability to run a particular software program.
At least one friend	Solicited from at the beginning of semester	Placing students in pairs within teams can ease transition and ensure that there is at least one friendly face in an assigned team. <sup>4</sup>

There will be other aspects that you might need to include, but the above cover most contingencies.

If you have a large class or are changing teams throughout semester, you may like to use Team Anneal<sup>5</sup> to help you set up teams. It allows you to input your cohort and specify weighted team constraints.

*Putting known social loafers together in a team can have excellent results. These students, freed from 'Type A' personalities, and given the opportunity to manage themselves, often develop leadership and teamwork skills. In assigning such teams, I allow for greater support and assign them a senior and experienced mentor to ensure that they are successful.*

A final word on naming teams. I strongly advocate against using numbers or an alphabetical sequence to distinguish teams as a team called Team 1 or Team A, may feel superior to a team called Team 6, or Team F. There are several different things that you can do instead:

- use colours;
- use a list of things that mean something within the course (e.g. a course about engineering materials has teams named Aluminium, Ceramic, Polymer etc.);
- use the name of the mentor (plus one of the above if the mentor has more than one team); or
- get the students to create their own team names the first time that they meet.

## Stage 1, Step 5: Prepare resources

### i) Documentation

Students will need a description of the project, and rubrics for any assessment to give them an idea of the standards that they should aim for. You might like to also consider the development of checklists for mentor meetings that will help students manage their time. These checklists could have:

- a list of tasks (generated by you or the students) with a space for '% complete' and comments;
- specific questions about team work and team progress; or
- sections that require individuals to respond.

### ii) A virtual team space

Nearly all higher education institutions have web sites or some form of learning management system (LMS) for each course. The use of a course website can aid student team work in several ways:

- by providing teams with their own discussion board. An individual section is created for each team which hosts a discussion board, quick email access, and storage for working files;

<sup>4</sup> This practice is not without its disadvantages. Two groups of friends placed together in a team can quite easily become two cliques that do not communicate, cooperate, or collaborate.

<sup>5</sup> Contact eLIPSE <https://www.elipse.uq.edu.au/> if you would like to use Team Anneal.

- by allowing teams to upload work requiring completion or editing for immediate access by other team members;
- by providing an easy way of communication between members; and
- by encouraging inter-group discussion through the ability to communicate electronically with other teams and through a general discussion board

and so, we strongly recommend that you facilitate an online team space.

### iii) Teamwork training links

TEAMS101x, an EDx/ UQx MOOC, is freely available for use with your students. You may consider using it as an optional resource, something that you would like students to complete in whole or part, or something that you would like to embed as part of your course assessment. TEAMS101x is discussed in more detail in [Stage 2, Step 4](#).

### iv) Peer assessment

If you decide to use peer assessment in your course, the process including moderation should be set out in the course profile and communicated to students at the commencement of semester. This way, everyone is clear on the rules.

At a minimum you will need to advise students:

- when peer assessment will be used throughout semester;
- how peer assessment factors will be calculated;
- what the process for formative feedback and mentorship to help them improve their peer assessment factors will be;
- how peer assessment will be applied to team marks to create an individual summative mark;
- if there will be a cap on peer assessment factors;
- that scores will be confidential and that personal comments and scores will not be distributed;
- how you will ensure that the system isn't manipulated; and
- that the exercise is compulsory<sup>6</sup>.

UQ supports Group Peer Assessment (GPA)<sup>7</sup> based on WebPA from The University of Loughborough. GPA has been designed so that it can be directly linked within Blackboard. Peer assessment is discussed in more detail in [Stage 4, Step 2](#).

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<sup>6</sup> In my electronic course profile, I have peer assessment (both formative and summative) as a Pass/ Fail activity. I do chase up incompletes before publishing grades however, as many students forget to do this assessment in the rush to end semester and begin studying for exams and it is unfair to fail them if this is all that is outstanding.

<sup>7</sup> If you would like to use GPA for summative or formative peer assessment, and team diagnosis, contact the UQ eLearning team on [help@elearning.uq.edu.au](mailto:help@elearning.uq.edu.au) or go to: <https://elearning.uq.edu.au/guides/group-peer-assessment#1>.

## Stage 2: Start of Semester

*The purpose of this stage is to equip students to manage both the learning objectives of the project, and to understand why explicit training in teamwork is an important part of those learning objectives.*

STEP 1	Communicate the process to students
STEP 2	Introduce students to team role preferences
STEP 3	Provide team training
STEP 4	Introduce Teams101x

### Stage 2, Step 1: Communicate the process to students

The strategies proposed in this manual need to be disseminated to the students for them to be effective. This communication needs to be made in the initial lecture to emphasise the importance of teamwork and the penalties for social loafing and unresolved team dysfunction.

As well as other introductory matters, the first lecture needs to cover whichever of the following that you have decided to employ:

- the importance of teamwork for achieving learning objectives;
- the intentional selection of teams to maximise student potential and performance (no more detail is given than this so that students can establish the characteristics of the members of the team without any pre-conceptions);
- the strategy for addressing social loafing whereby peer assessment and a chance to reassign social loafers mid-semester will be used to discourage and appropriately reward such behaviour ([Stage 3 Step 3](#));
- how teamwork will affect course assessment, namely:
  - the peer assessment factor (PAF) and the sensitivity of individual marks with respect to it. Table 6 can be used as an example to show the spread of marks for a team of six students (A to F) who all received the same mark for a team-based deliverable but who received different peer assessment factors (PAF);
  - the team assessment mark (TAM) and the sensitivity of final marks with respect to it (also shown in Table 6); and
- the reason for, and timing of, initial workshops and mentor meetings.

Table 6: Example of the Application of Peer Assessment Factors

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Student name	Team Mark (/100)	PAF	Amended Mark (/100)	TAM (/100)	Final Mark (/100)
A	70	0.9	63	60	62
B	70	1.1	77	60	74
C	70	1.2	77	75	77
D	70	1.0	70	75	71
E	70	0.8	56	45	54
F	70	0.9	63	45	59

**Column explanation:**

- Column 2:** The mark out of 100 achieved for the team deliverable. In this case, there are no individual sections and hence a single mark has been given.
- Column 3:** The Peer Assessment Factor (PAF) calculated as per [Stage 4, Step 2](#).
- Column 4:** The amended project mark, calculated by multiplying columns 2 and 3.
- Column 5:** The Team Assessment Mark (TAM) allocated to each student based on teamwork performance (see [Stage 3 Step 2](#)). Remove this column if you are not employing a TAM.
- Column 6:** The final mark, calculated based on column 4 and 5 by assigning weightings to the value of each of the exercises. In this illustration, the TAM is worth 20% of the final mark: Column 6 = (0.8 x Column 4) + (0.2 x Column 5); remove this column if you are not employing a TAM.

At this stage, the students could be directed to complete the first sections of TEAMS101x.

## Stage 2, Step 2: Introduce students to team role preferences

*The way we work within a team is shaped by our personality traits and attributes. If our individual preferences for how we communicate and how we do our work match well with those of our team members teamwork is more likely to flow smoothly. If our preferences clash, tensions and conflict can arise. Understanding our own traits and attributes, as well as those of our fellow team members, is a significant part of understanding how we can all work together as an effective team. [Teams101x]*

I recommend the use of a personality quiz or a team role inventory in the early stages of semester, or in the workshop outlined in [Stage 2, Step 3](#) as this allows students to:

- understand the various roles within teams either through the questionnaire itself or through information that you supply for interpretation purposes;
- challenge their perceptions of how they like to work within teams;
- complete an ice-breaking activity that will help them plan for the coming semester building on team member's strengths.

There are several systems that can be used but some are proprietary and come with a commensurate cost:

- Meyers Brigg type indicator – a free on-line personality indicator. Rodriguez Montequin, Fernandez, Balsera and Garcia Nieto (2013) have developed profiles for a number of the MBTI personality types in the context of student project teams and this information could be circulated to students to help with interpretation.

- Five Factors – a free on-line personality indicator. There is no definitive article on how the five factors affect team work but you could certainly ask the team to compare their scores and think about what this means for the team going forward.
- Belbin Team Roles Inventory – a proprietary team role questionnaire which needs to be purchased on a per head basis<sup>8</sup>. An alternative to getting students to do the questionnaire is to ask them which role they most identify with. There are free online resources provided by the Belbin Institute for this approach.

All these systems and their interpretations are covered in Teams101x. You could ask your students to move through this chapter of the MOOC and report back if relevant.

## Stage 2, Step 3: Provide team training

Initial activities should be planned to allow both team formation and continued team collaboration. This is best done if the activities achieve both project and team requirements and thus appeal to the student. Effective communication to students in these sessions will reduce subsequent demands for explanation, so it is worthwhile checking as you proceed that students have grasped the key points. Get them briefly to cross check their understanding with the person sitting next to them.

I use workshops as shown in Tables 7 and 8; undertaken in a two-hour session in the first week and in a one-hour session the following week. Not everything in the table will be necessary for your course but I have included it here for completeness. The use of Teams101x will also reduce content.

Table 7: Workshop 1: Initial Teamwork Briefing and Training (1-2 hours)

#	Learning outcome	Resources	Student activity	Time (mins)
1	Why teamwork is important, how teamwork will be employed in the course, and how it will be assessed.	Intro Powerpoint	Listen, make notes, ask questions	15
2	Overview of the team project(s) and subtasks	Project handout	Listen, make notes, ask questions	15
3	Team roles and individual preferences (Note 1)	Weblink to online survey or handout Debrief Powerpoint	Complete questionnaire	20
3	To get students in their teams	Student team lists	Find your team	10
4	Icebreaker – who is in your team, what are the team's strengths and where will extra effort be required.	Template for completion by teams	Discussion	20
5	Team Charter agreement – vision (Note 2), team name, set of rules (Note 3), initial leadership	Team charter template (Appendix B)	Completion of Team Charter	30

<sup>8</sup> As of 2017, the cost was between \$19 and \$23 per student depending on the depth of analysis and support required.

## Notes

1. Students are asked to discuss their strengths and weaknesses in terms of their team roles and then to discuss how this may make the team strong or weak. If a team knows that it is weak in a particular area, then efforts can be made to ensure that this does not negatively affect their work. In addition, students are directed to identifying any possible conflicts that may occur through their individually preferred methods of working in teams.
2. Students may not like putting together Vision diagrams but this step ensures that the goals of the team are discussed and agreed. An alternative is to incorporate this step into the Team Charter/ Code of Conduct by asking what grades they want, what quality they want their final deliverables to be etc.
3. Students can reflect on positive and negative experiences that they have had in the past and formulate rules that will preserve the former and eliminate the latter. The Team Charter/ Code of Conduct has comprehensive questions with respect to rules. You can edit this document to simplify it should this make it more relevant for your cohort.
4. Preliminary task allocation can be done through the Team Charter or perhaps students (especially later year students) may like to generate a work breakdown structure, flow diagram or similar.

*I emphasise that weakness on a team or individual basis in any of the team roles does not mean failure. What it means is that the team will consciously need to address the weakness and thus ensure that failure does not result. In this way, the skills associated with the role are learnt. This then illustrates the other point of emphasis which is that team roles are not static and they change with experience, maturity and with the input of other team members. It should also be stressed that team roles are not cause for stereotyping.*

Upon completion of Session 1, students will have:

- met and broken the ice;
- defined their intra-team relationships, potential conflicts, and potential weaknesses/ strengths;
- be well progressed in the team forming having decided upon shared goals, and written up a set of rules for operation; and
- be on the way to performing as they have a team task to complete for Workshop 2.

Teams are asked to bring the deliverable for the second workshop, in this case a plan for work breakdown and task allocation, to the second workshop (Table 8) where a mentor will review and discuss the plan with them and answer any questions that they may have.

Table 8: Workshop 2: Team Training and Mentor Introduction (1 Hour)

#	Learning outcome	Resources	Student activity	Time (mins)
1	Introduction of mentors and their role	Powerpoint	Listen	10
2	Meet mentor and discuss sub-task/ work breakdown deliverable (Note 1, 2)	Mentor allocation	Mentor meeting	10/ team
3	Produce schedule for semester	-	Preliminary Gantt chart	40

## Notes

1. Activity 2 runs concurrently with Activity 3; mentors will move from one team to another.
2. You can change the amount of time for each mentor meeting depending on how many teams each mentor is assigned (e.g. 10 minutes allows for 5 teams at 10 minutes each).

Upon completion of Session 2, students will have:

- met their mentors and understood the rhythm of the course with respect to mentor meetings and their function;
- a better idea of the preferred roles of their team members;
- a better idea of methods of communication; and
- a schedule for completing the allotted team tasks.

One final thought. It should be no surprise that many students who will be identified as social loafers do not come to the first lecture and thus miss learning about the measures put in place to allow teams to penalise this behaviour. As a remedy to this, I email the cohort in the week prior to the beginning of semester and let them know how important attendance at the first lecture is. However, you should ensure that students with reasonable excuses for missing the first lectures are directed to, and have access to, the information you present.

## Stage 2, Step 4: Introduce Teams101x

One of the issues that I first noticed was that in our effort to fit discipline-specific content into our courses, we neglected to give students any direction in terms of teamwork. Although teamwork skills are best learnt experientially, there is still a lot of information that we can arm students with so that they do not have to approach the team-based project on a trial and error basis.

This led me to develop Teams101x, a free online MOOC through the UQx/ EDx platform. As previously mentioned you need to decide if and how you will use this resource: you can choose to integrate the MOOC into your course or just offer it as a convenient stand-alone resource. You can choose to view/ collect/ grade the students' reflections and input and you can also track how long each student spends on each page to ensure that the material is read. However, if you want such oversight of the student activities you are better using the MOOC as a SPOC<sup>9</sup>.

The sections in the MOOC are shown in Table 9; more details are given in Appendix C.

Table 9: Teams101x

Section	Content	Activities
1. What is a team?	<ul style="list-style-type: none"> <li>• Teams: An introduction</li> <li>• The lifecycle of a team</li> <li>• Reflect on your experiences of teams</li> </ul>	<ul style="list-style-type: none"> <li>• Short answer (4x)</li> <li>• Discussion</li> <li>• Poll</li> <li>• Questionnaire x2</li> </ul>
2. Personalities and role preferences in teams	<ul style="list-style-type: none"> <li>• Teamwork requires many roles</li> <li>• Personal traits and attributes</li> <li>• Belbin team role types</li> </ul>	<ul style="list-style-type: none"> <li>• Poll x1</li> <li>• Discussion x2</li> <li>• Drag and drop x1</li> <li>• Drop down x1</li> <li>• MCQ x2</li> </ul>

<sup>9</sup> Contact the UQx team at <https://uqx.uq.edu.au/> or [uqx@uq.edu.au](mailto:uqx@uq.edu.au) if you wish to have Teams101x as a course-level SPOC.

Section	Content	Activities
3. Critique a hypothetical team	<ul style="list-style-type: none"> <li>• Meet our hypothetical project team</li> <li>• Peer assessment: Team roles and dynamics (Parts 1 and 2)</li> </ul>	<ul style="list-style-type: none"> <li>• Critique a hypothetical team</li> <li>• Short answer x4</li> <li>• Peer assessment x2</li> </ul>
4. Everyday teamwork planning tools	<ul style="list-style-type: none"> <li>• Tips for new teams</li> <li>• Team meetings</li> <li>• Project planning</li> <li>• Team decision-making</li> </ul>	<ul style="list-style-type: none"> <li>• No activities</li> </ul>
5. Leadership, assertiveness and cooperation	<ul style="list-style-type: none"> <li>• Leadership</li> <li>• Assertiveness and cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• Poll x2</li> <li>• Discussion x2</li> <li>• Short answer x1</li> </ul>
6. Maintaining your team	<ul style="list-style-type: none"> <li>• Effective communication</li> <li>• Embracing diversity</li> <li>• Staying ahead of team conflict</li> </ul>	<ul style="list-style-type: none"> <li>• MCQ x3</li> <li>• Drag and drop x2</li> <li>• Discussion x1</li> </ul>
7. Addressing team conflict	<ul style="list-style-type: none"> <li>• The reality of team conflict and dysfunction</li> <li>• How conflict escalates</li> <li>• Addressing team conflict</li> <li>• Addressing team dysfunction</li> <li>• DIY team problem solving diagnosis tool</li> </ul>	<ul style="list-style-type: none"> <li>• Questionnaire x1</li> <li>• Short answer x2</li> <li>• Discussion x1</li> </ul>

## Stage 3: During Semester

The purpose of this stage is to monitor the progress of students and teams, and to mentor where necessary to overcome any team dysfunction. Steps 1, 2 and 4 of Stage 3 are linked, and can be repeated at appropriate intervals.

STEP 1	Get students to reflect
STEP 2	Conduct mentor meeting(s)
STEP 3	Address social loafing
STEP 4	Provide formative assessment
STEP 5	Provide hurdle assessment

### Stage 3, Step 1: Get students to reflect

In this step, students reflect on their progress prior to a mentor meeting. There are two outcomes here:

1. students take time to reflect on their progress and their team, and
2. mentors can diagnose dysfunction and prepare strategies for discussion in the meeting.

Appendix D has two types of forms that could be used here; as always you can edit these to cover the activities within your course. Remember also that GPA<sup>10</sup> can be used to automate this process. Whichever way you choose, the reflection should be:

- completed by the individual student with the knowledge that only the course mentors and lecturers will view its contents;
- completed prior to each mentor meeting ([Stage 3 Step 2](#)) with sufficient time to allow interpretation by the mentor and preparation for appropriate mentor meeting facilitation; and
- submitted formally, perhaps as a compulsory requirement of the subject, to ensure the students undertake the reflective process.

If you are calculating Peer Assessment Factors (see [Stage 4, Step 2](#)), students may need some in-class instruction about how the distribution of the 100 points among members of the team works. I include the following in documents that I distribute to students and run through the process quickly in class.

*As a ready-reckoner of the Peer Assessment Factor (PAF) multiply the score that you are giving someone by the number of people in the team ... now have a look at the score. Is this the percentage of the team mark that you think they deserve?*

Another suggestion is to encourage students to have a team meeting to reflect the team's progress and any obstacles to working together prior to completing the form.

There are a couple of other things that you should be aware of:

- **You might turn up some very strange students ...**  
I have found that the PETS process can expose those students with psychological problems very early in the course: usually through the process of individual reflection, both by the student in question and by their team mates. Very often these students require counselling that is not within our expertise and hence I refer them to the university's student support services.

<sup>10</sup> GPA is an online peer assessment system. It is customisable in that you can set the categories for peer assessment and decide whether to use a Likert scale or divide 100 points. The system includes automated features such as emailing students who have yet to complete the assessment, and moderating scores.

- **All students must submit the forms.**

There are two reasons why all students must submit the forms: i) calculated Peer Assessment Factors (PAF) can become skewed if based on the scores arising from only a couple of students' marks; and ii) if only a couple of students submit forms then the remainder of the team knows who to was responsible for their PAF – this can get nasty if they have received a low score.

## Stage 3, Step 2: Conduct mentor meetings

The mechanism for making sure the team is on track is the mentor meeting. The number of mentor meetings is for you as the instructor to decide but we have found at least two, perhaps three to be a good number. You will need to determine the number of mentor meetings before the start of semester, and schedule these into the course.

Mentor meetings, if done correctly, are highly valued by the students for technical, time management, and team facilitation input. At these meetings, the mentor provides formative feedback to the team.

As previously mentioned, prior to the meeting, mentors should calculate the Peer Assessment Factor (PAF) for each student, and read all reflections to diagnose group dysfunction, and in particular, to identify any social loafers. The following should be considered when interpreting the form:

- **social loafing** may be indicated by:
  - specific comments to this effect by most team members;
  - most team members indicating that a student is not contributing and subsequently giving them very low marks when distributing the 100 points; and/ or
  - an individual reflection at odds with the rest of the team showing a complete lack of knowledge with respect to the team's progress and work;
- **personal conflict** may be indicated by:
  - specific directed comments about a team member made by one or more students; and/ or
  - a distribution of marks against a student at odds with the rest of the team's distributions made by one student;
- **poor team performance** may be indicated by:
  - specific comments about the team achievements (or lack thereof); and/ or
  - specific comments such as poor meeting procedure, poor communication.

Mentor meetings should be formal with all team members present and can be anywhere from 30 to 60 minutes in duration depending on the detail involved in the project, and the check list of tasks to be evaluated. It is sometimes useful to have longer meetings but allowing 60 minutes per group becomes a large time commitment if you are mentoring more than a couple of teams. To formalise this procedure and to ensure that students understand the importance of the process, it is recommended that a mark be assigned to this aspect of group work.

At the mentor meetings:

- team members are asked individually to give an update of how the team is tracking in terms of the goals for the team and their cooperation to ensure group learning objectives are being achieved;
- the work detailed as requiring completion on the project check sheet, if you have decided to use one, is examined and technical feedback given;
- the mentor explores with the team any issues raised through student reflection and/ or peer assessment and discusses strategies for addressing these problems: where the team is, where it needs to be, and methods for proceeding; and

- the discussion can be directed to social loafing, personal conflict, and differing team expectations if necessary. Peer Assessment Factors (PAF) may be given back to the team and a team discussion initiated around how any individuals who have peer assessment factors lower than one, can be reintegrated into the team.

The level to which the mentor becomes involved with the team at these meetings needs to be agreed with the teaching team at the beginning of semester (see [Stage 1 Step 3, Table 4](#)).

*Letting students know PAFs during semester, perhaps without implication on marks, is important to ensuring team success. Teams with dysfunction or poorly performing members can turn things around but the mentor must manage the session well. However, it is never easy - even after years of mentoring, I still find it very difficult. I open with why we are meeting and move on to strategies for moving forward, cutting short any discussions about blame. In any case, there is no right way to do this – you just must feel your way with each different situation. Discussing problems with the teaching team beforehand is also very helpful.*

Some other things that you might be asking:

- **Why do the mentor meeting reflection forms need to be confidential?**

To be truthful, students must believe that the other members of their team will not see what they have written. Your teaching team must be made aware of the sacrosanct nature of the student reflections or the tool no longer is of any use as reflected by a student:

*We were told peer assessment was confidential. However, in mentor meetings individuals who had given slack team members honest reviews were named and the problem discussed openly. This, in my opinion, encouraged teams to distribute marks evenly from this point on.*

Sometimes it is necessary to name students (see below) but this should be done in such a way that the other team members are not identified as having made the damning remark. I have found the phraseology “more than one team member has identified that ...” to be very helpful.

- **What if I have a social loafer?** (see also the following step)

The decision of whether to reveal PAFs and with them social loafers and team members who have caused conflict needs to be taken with great care.

I tend only to name students who are in danger of failing due to social loafing as this usually causes the student to reassess their actions and reapply themselves to the team. There will always be ill-feeling associated with revealing students who the team have judged to be poor performers – skilful facilitation is required to ensure that these negative feelings are resolved at the mentor meeting. I often find the old trick of calling a break in proceedings if tempers are starting to fray to be very useful. Also the ‘no blame’ method where the team is asked to move forward rather than looking back.

In most cases, I ask the students whether they would like to discuss the issue at the meeting or, now that they are aware that there is an issue, whether they would like to address it themselves at their next team meeting. This is a judgement call and often you will be able to tell whether the team can sort out issues on their own.

The mentor must discuss with the team, opportunities for the social loafer to be brought back into the team as a useful member. This is often difficult for the team to facilitate but if left, the situation will generally continue with the social loafer left out of proceedings due to the team being unwilling to trust them. Try getting the team to set a time limit for the social loafer to produce the agreed work and in this way manage to gain the team’s agreement in assigning work to the social loafer. Be warned that students, both “accused” and “accusers”, will bear a grudge after the incident and hence the situation will need continued monitoring.

- **Is there a need to meet with individuals?**

Individuals who are having trouble with teamwork often can be best counselled through individual meetings. These students may have fallen foul of a clique within the team, have insufficient confidence to address what they perceive to be a problem directly with the team, or have an issue that they would like to discuss with you rather than the team. In each case, I find that a one-on-one meeting can ameliorate the issue. During these meetings, the coordinator facilitates the frank discussion and delineation of the problem and then discusses and develops potential strategies for problem solution.

- **How do I calculate a TEAM ASSESSMENT MARK (TAM)?**

The team assessment mark (TAM) can be included in the final assessment ([Stage 4 Step 4](#)) if improving teamwork skills is an assessable learning objective. It can be used to encourage students to fill out the necessary individual reflections prior to mentor meetings, attend mentor meetings, and achieve the tasks outlined on project check sheets.

The TAM can be generated through several different assessments. I often generate it through two parts: i) evaluation of individuals at mentor meetings: submission of forms, attendance and participation at mentor meetings, team learning etc. (Table 10), and ii) an overall team mark (Table 11) or grade based on the mentor's observations of team success and team functionality. The inclusion of an overall team dimension score encourages teams to communicate well, solve any conflicts, share learning, and meet deadlines in addition to emphasising the importance of teamwork.

Table 10: TAM Rubric (For use during mentor meeting, Max mark 15)

MENTOR MEETING No. #		Student A	Student B	etc.	SCORING
<b>Individual items</b>					
Reflection submitted					0=No 3=Yes
Present					0=No 3=Yes
Active participation					0=None 1=Avg 2=Outstanding
<b>Group items</b>					
Milestones complete					0=None 1=Few 2=Most 3=All
Team meeting logs					0=Poor 1=Avg 2=Comprehensive
Shared learning					0=Poor 1=Avg 2=Excellent

Table 11: TAM Rubric (For use at end of semester, Max mark 50)

Team's purpose:	Uncertain	1	2	3	4	5	Clear
Team structure:	Cliques and individuals	1	2	3	4	5	All in
Communication:	Very guarded	1	2	3	4	5	Very open
Goals:	Set from above	1	2	3	4	5	Through team interaction
Use of team members' skills:	Poor use	1	2	3	4	5	Good use
Support:	Little help for individual	1	2	3	4	5	High support for individuals
Conflict:	Difficult issues avoided	1	2	3	4	5	Problems discussed openly
Influence on decisions:	By few members	1	2	3	4	5	By all members
Risk taking:	Not encouraged	1	2	3	4	5	Encouraged/ supported
Working on relationships:	Little effort	1	2	3	4	5	High level of effort

The elements in Table 10 and 11 can be used in isolation or combined – it is up to you. Indeed, a less detailed rubric for giving an overall team dimension score, based on a 1 (lowest) to 7 (highest) grade system, may be as follows:

- 7 All team members contributed effectively and equally to setting and achieving the project goals, and shared all internal team communication, learning and skills development in the project work. There may have been obstacles but the team overcame them through open discussion.
- 6 All team members contributed effectively to setting and achieving project goals and shared most internal team communication, learning and skills development in the project work. Obstacles overcome for the most part.
- 5 All team members contributed reasonably to achieving project goals but the effort was not equitable and there was limited internal team communication and sharing of learning and skills development in the project work. Some obstacles were unresolved.
- 4 All team members contributed reasonably to achieving project goals but the effort was far from equitable and there was erratic internal team communication, and little or no sharing of learning and skills development in the project work. Most obstacles were unresolved.
- <4 Not all team members contributed their fair share, internal team communication was poor, and there was no sharing of learning and skills development in the project work.

The value of this segment of assessment has been up to 20% in courses I have taught where developing team skills has been one of the learning objectives. In other courses, I have neglected this factor altogether; these courses tend to be 4<sup>th</sup> year ones where team work skills are well honed and students are familiar with the processes need to maintain functional teams.

- **What are the attributes of a good mentor?**

The qualities of a good mentor are (Rowley, 1999): commitment to the role of mentoring; acceptance of the student; skill at providing instructional support; effectiveness in different interpersonal contexts; a model of a continuous learner; and communication of hope and optimism.

And the big one ... required during all mentor meetings and ad-hoc meetings with teams, is that of listening. *“A good mentor is a good listener. Hear exactly what the student is trying to tell you—without first interpreting or judging. Pay attention to the “subtext” and undertones of the student’s words, including tone, attitude, and body language. When you think you have understood a point, it might be helpful to repeat it to the student and ask whether you have understood correctly. Through careful listening, you convey your empathy for the student and your understanding of a student’s challenges. When a student feels this empathy, the way is open for clear communication and more-effective mentoring”* (National Academy of Science, 1997). This last – a good listener – is critical.

We have found mentoring to be something that we get better at the more we practice it.

### Stage 3, Step 3: Address social loafing

One of the outcomes of Mentor Meetings and anonymous student reflection is that students who are social loafing will be identified through a low PAF score, other team member comments, and your observations.

You will have made it clear at the beginning of semester ([Stage 2 Step 1](#)), that the penalty for social loafing may be to be re-assigned to a newly created team which comprises social loafers who have been excluded from their teams for poor participation and performance. The point at which this re-assignment takes place is up to you but I usually do this after the second mentor meeting based on two poor PAFs. I have found that I also need to specify a significant decrease in PAF scores between mentor meetings as a criterion because, unfortunately, there are those students who will work the system doing as little as possible whilst managing to keep just below the radar.

It is important that:

- social loafers are given written advice that they face re-assignment unless their performance improves after the first poor PAF assessment. Depending on comments from teammates on the anonymous reflection sheets, this is usually a score of 0.7 or less but sometimes 0.8 can trigger reassignment if this score is not due to other circumstances such as sickness (See [Stage 4, Step 2](#) for an overview of PAF interpretation);
- social loafers have the opportunity to redeem themselves, so reassignment should only take place after a second negative PAF assessment; and
- re-assignment is by the course coordinator on the advice and recommendation of the affected team and mentor. An alternative course of action to reassigning a social loafer is open discussion with the team, wherein the social loafer is named. This course of action is supported if members of the teams with social loafers have not expressed a desire for the removal of the social loafer but rather a wish for their remediation within the team.

If a new team of reassigned members is to be made, then consideration needs to be given to:

- the scope of the project(s) that this team shall work on;
- the information the reassigned members can take with them to the new team; and
- whether the team that is losing a member needs to be compensated for the loss of a member by, for example, a project modification which lessens their workload but still allows the learning objectives to be achieved.

There is no right answer to the problem of dealing with social loafers; each answer will be situation specific.

*I have never had to reassign a student due to a second poor PAF assessment; I have come close but at the final moment the existing team has stepped up and 'claimed' the social loafer. I have had to reassign students due to irreconcilable team dysfunction however. And I currently put teams of known social loafers together at the beginning of semester rather than 'sharing' them around other teams. This team is always told of the basis of their selection: "You remember how last semester, the rest of the team seemed always to be way ahead of you ...", and given extra mentoring to ensure that they meet submittable assessment deadlines."*

Over the years, I have found that social loafers come in several different flavours, or combinations of flavours. I see them so regularly that I have developed names for them:

- **The informed reformer:** This is the student that misses the first important lectures of the semester where the PETS process is outlined, along with its strategy for coping with social loafers. The informed reformer will drift along unaware of the peer assessment process and the disgruntlement of their fellow team mates until it is pointed out to them in a mentor meeting with the team. These students will often be astonished to learn they have been loafing and will usually reform.
- **The non-team player:** This student is often a high achiever who gets excellent marks in all subjects but believes all work done by anyone other than themselves is inferior and needs to be redone. Often, they score low marks in peer assessment as the other members of their team penalise them for poor communication, creating extra work and failing to resolve any team problems. On occasion, they will produce a final deliverable on their own. They are most 'dangerous' when they take over leadership, complete the task before the other students have had a chance to read the assignment, and hence do not allow the rest of the team to achieve learning objectives. I have found that fixing this problem is difficult and requires much monitoring and mentoring often to the intense frustration of the non-team player.

- **The quick learner:** This student receives one bad peer assessment and an accompanying warning email and reforms to become a valuable member of the team. A subset of this type of social loafer will go on to try the same behaviour in subsequent teams but will immediately reform if the team penalises them. There are also some students whose PAFs get steadily worse but not bad enough to warrant a warning email. It is almost as if they are testing the limits of the team's patience and finding the level at which they will be penalised by their peers.
- **The un-confident:** This student is sure that they are not as clever as the rest of their teammates and hence let them make all the decisions and do the work. They are afraid of getting it wrong and their perceived lack of intelligence being exposed. They may have made a previous mistake and feel that they have lost some of the team's trust. These students are hard to recognise but respond well to a one-on-one pep talk around the fact that they have passed the same exams that everyone else has and have earned their place at university.
- **The laid-back:** This student is quite happy to let more motivated students take on tasks as this will give them more time to concentrate on other subjects. It is quite possible that this student is also an **informed reformer** or **quick learner**, in which cases they can become valuable members of the team.
- **The recidivist:** You can email, talk to, penalise, and finally fail this student with no effect. This is the true social loafer and I have yet to find a method of changing this student's behaviour and it is with heavy hearts that I note they have re-enrolled in my courses as I know that without monitoring they will negatively impact on the other members of their team.

I have not presented all methods/ successes here mostly as they are situation/individual specific but I do know that as you get more experience, you get better at diagnosing, reforming and curing dysfunction.

### Stage 3, Step 4: Provide formative assessment

Mentor meetings provide the ideal situation for formative assessment allowing the student to receive feedback on technical issues, time-management, and team processes. This is particularly important if the team project is heavily weighted. As previously mentioned, it helps to stage mentor meetings around deliverables thus allowing mentoring to cover all the issues mentioned above.

An example of how to manage the relationship between mentor meetings, formative and summative assessment taken from a third-year communication course, is given in Table 12 and the following bullet points. The final deliverable is a report evaluating the effectiveness of a public communication campaign the students have run throughout the semester.

Table 12: Overall Team Mark Calculation

Task	Deliverable	Due	Weight	Affected by PAF
1	Written Proposal	Week 3	10%	No
2	Oral Presentation	Week 9	30%	Yes
3	Written Report	Week 13	60%	Yes

The mentor meetings for this course are:

- Mentor meeting 1 (Week 4):
  - feedback on the written proposal;
  - questions and answers around the project brief;
  - discussion of project aims, schedule, and team approach;
  - team evaluation – perhaps based on a Tuckman evaluation (Appendix E); and
  - preliminary diagnostic work on group dynamics.
- Mentor Meeting 2 (Week 8, Peer assessment required):
  - feedback on a ‘draft’ of the oral presentation;
  - questions and answers around the final deliverable; and
  - feedback of ‘peer assessment factor’ and ‘self-assessment over peer assessment’ scores to facilitate improved performance of those students with a PAF less than one.
- Mentor Meeting 3 (Week 12):
  - ensure the team is on track to produce their final deliverable;
  - assist in the resolution of any unresolved issues relating to task or team – including follow up from Mentor Meeting 2; and
  - provide feedback on the draft report.

### Stage 3, Step 5: Hurdle assessment

The other suggestion we have for keeping the team, and individuals within the team, on track is to use a hurdle assessment task. This gives students feedback about their progress in relation to knowledge outcomes of the course and ensures that all students are engaging with learning objectives.

Hurdle assessment is a summative assessment task which must be successfully completed before the student can receive a mark for subsequent summative assessment or pass the course. Hurdle assessment should always be applied with care, and some institutions have policies which place limits on the nature and extent of hurdle assessment. Check your policy manual for details.

Hurdle assessment can be in the form of a PASS/FAIL test. It need not be onerous or lengthy and you can often facilitate these tests using a LMS function. However, you will need to ensure that the system has safeguards against collusion.

Alternatively, you may wish to use an in-class multiple choice test which can be computer marked.

For example, in one course, the hurdle assessment takes the form of a session using the computer program which forms the backbone of one of the projects and is essential for learning objectives. The student is asked to simulate a basic process, run the simulation, and interpret answers. Students have been given six 2-hour tutorial sessions about the operation of this program previously and are generally given a second chance at passing the quiz should they fail the first time.

## Stage 4: Getting over the line

The key elements of this stage are the delivery by the student teams of the finished project(s), and the assessment of their performance as a team and individually.

STEP 1	Submit completed team task(s)
STEP 2	Peer assess individual performance
STEP 3	Validate peer assessment
STEP 4	Calculate marks

### Stage 4, Step 1: Submit completed team task(s)

There is not much for you to do here unless the deliverable contains pieces of work completed by individuals that are to be assessed individually. In this case, you will need to develop a form that students can use to identify their input, and of course your assessment criteria, made available at the start of semester, should state the breakdown between team and individual marks.

### Stage 4, Step 2: Peer assess individual performance

#### i) Overview

Each deliverable should be accompanied by a Peer Evaluation Form (Appendix D2) or the use of an online system such as GPA to manage this process. There are many who argue against the direct application of a peer assessment factor to a student's marks<sup>11</sup>, and they have done so in the scholarly literature, but if the process is done rigorously with checks and balances at all stages ([Stage 4, Step 3](#)), then it is a very good tool for ensuring that individuals receive the mark that they warrant ([Stage 4, Step 4](#)).

The process described below is the one that I have used for two very large classes (N=1000) with 50-60% team-based assessment over the past decade. Each year, I have somewhere between two and five complaints, and of those complaints, perhaps one requires an independent investigation<sup>12</sup>. For the other students, the rigour that I have applied to agreeing their peer assessment factor (PAF) leaves no room for argument.

*We used to get teams to fill out a single form agreeing weightings between individual members. All members of the team had to sign the form before it was submitted. However, we received complaints from students reluctant to openly penalise friends and people that they had to continue to work with. The anonymous version has completely eradicated this complaint.*

<sup>11</sup> Many propose a scaling factor such as Kilic and Cakan (2006) for example, to reduce the impact of the PAF. The formula for this is: Scaled PAF = PAF – Scaling Factor x (PAF -1). They recommend a scaling factor between 0.5 and 0.3 depending on the desired distribution of the students' marks. I have never used a scaling factor and apply the PAF directly to the mark achieved by the team to calculate the individual's mark.

<sup>12</sup> For one in approximately 2000 students (i.e. 0.05%), I will conduct an independent investigation. They will claim that their team did not give full recognition to the work that they did for the assessment piece. This can happen due to personality clashes, conflict, or simply ignorance on the part of the team. So, I ask another academic to conduct brief interviews with all the team members and examine any available evidence (e.g. chat room records, design drawings etc.). In about 50% of the cases, I find that the student has been unfairly treated and amend their PAF accordingly.

## ii) Calculating a Peer Assessment Factor (PAF)

All students in the team are asked to split 100 points between the members of their team and themselves<sup>13</sup> depending on various criteria. This can be undertaken for a single criterion (e.g. overall performance) or many (e.g. communication, effort, punctuality to meetings and with submission, technical input etc.). I use the following criteria as these have been developed over several years in collaboration with students.

- Teamwork and Leadership = attendance and participation at meetings, email/ SMS/ discussion board response, ability to work with and share findings with team; ability to lead through collaboration
- Contribution to overall project = including: scoping, research, design, testing, analysis, reporting, editing, final submission production. *Don't forget to reward up-front work such as idea generation and literature research that may not have been used in the long run but that underpinned final work;*
- Timeliness = ability to meet agreed contribution times; and
- Performance = standard and completeness of work.

The process is undertaken anonymously in that team members do not see others' evaluations.

The PAF is calculated by the sum of all scores attributed to a student ( $\sum \text{Scores}_{\text{Given to student}}$ ) divided by the number of criteria multiplied by 100 ( $N_{\text{Criteria}} \times 100$ ):

$$PAF_{\text{Student}} = \frac{\sum \text{Scores}_{\text{Given to student}}}{N_{\text{Criteria}} \times 100}$$

The sum is divided by 100 as this is the mark achievable should everyone get an average mark (e.g. with five students in a team, an average student would receive 20 points from each student including themselves – this would total 100). The formula assumes all students have completed the assessment. If a student has not completed the assessment then the equation becomes:

$$PAF_{\text{Student}} = \frac{\sum \text{Scores}_{\text{Given to student}}}{N_{\text{Criteria}} \times 100} \times \frac{N_{\text{Students in team}}}{N_{\text{Students completing peer assessment}}}$$

GPA does these calculations and corrections automatically.

## iii) What does the PAF mean?

A student who pulls their own weight and undertakes a similar amount of work to everyone else, should get a PAF of 0.99-1.01. Students who lead the team and put in extra work, may get a PAF above 1.0. Table 13 shows the various levels of PAFs and possible interpretations.

<sup>13</sup> You can ask students to assess the others in their team and not include self-assessment. I am not in favour of this as this does not allow students to develop an appreciation of their own input against others but it does remove the opportunity for students to try and give themselves higher marks than are deserved.

Table 13: Interpreting PAFs

PAF	Interpretation	Comments
>1.3	Alarm! Team failure.	Some team members are not participating and/ or this student is doing all the work. Either way, learning objectives are probably not being achieved by all the team. You need to find out what is causing this and put something in place to ensure all the team passes the course.
1.15-1.3	Super Leader/ Dominator?	As above, scores this high indicate a team imbalance that should be addressed. You may need to assign tasks to get all members active.
1.03-1.15	Leader	A leader who is putting in some extra effort. Usually no cause for alarm.
0.98 - 1.02	Good teamwork	A score in this range indicates that the student is pulling their weight. Scores under 1.0 usually are caused by rewarding a leader with additional points thus causing others to get less than an average amount of points. And usually they are not cause for alarm.
0.95-0.97	Rescuable social loafer	This student is underperforming, may be a little quiet in meetings, or perhaps has not been giving the team their full attention. Letting them know often is all that is necessary to bring them back to unity.
0.85-0.94	Social Loafer	Any PAF below 0.94 is unacceptable. Talk to the team (and the student), and find out what is going wrong.
<0.85	Alarm! Individual failure!	This student is in grave danger of failing the course. Much work/ trust is required for them to be accepted back into the team.

The PAF may need to be capped as giving potentially large increases in marks can lead to final course marks greater than 100% if there is no other assessment. I use a cap of 10% as the marks for my courses are project-based which means that greater 'bonuses' can cause marks to be elevated beyond that commensurate with the individual student's achievement and learning. This cap is communicated at the beginning of the course and it is documented in the electronic course profile.

#### iv) Calculating a Self-Assessment over Peer Assessment (SAPA) factor and what does it mean

The SAPA is the score that the student has given themselves ( $Score_{Self}$ ) across all criteria divided by the average of the scores that all the other students have given them ( $\sum Score_{Others} / (N_{Team} - 1)$ ).

$$SAPA = \frac{Score_{Self}}{\sum Score_{Others} / (N_{Team} - 1)}$$

A SAPA of over 1.0 indicates that the student believes they do more in the team than their teammates think; a SAPA less than 1.0 indicates that the student undervalues their contribution.

SAPAs are useful to feedback during mentor meetings and they are also useful for moderation purposes as they can show where a student may have tried to unfairly disadvantage themselves. Similarly, the scores given by a student to another, calculated as per the SAPA:

$$Ratio_{Individual\ over\ average} = \frac{Score_{Assigned\ individual\ by\ student\ A}}{\sum Score_{All\ other\ team\ members} / (N_{Team} - 1)}$$

are very useful when it comes to moderation (see next step) and identifying possible conflicts within the team.

GPA calculates both the SAPA and the Ratio.

## Stage 4, Step 3: Validate the PAF

### i) Formative feedback

As with any pedagogic innovation, especially one attached to summative assessment tasks, students should be given the opportunity to practice the task so they understand how to do it, and how it impacts on their grade before it counts. Therefore, we have included the completion and feedback of the Peer Assessment Factor in mentor meetings (see [Stage 3, Step 2](#)). It gives the students a chance to improve on their team input and develop their skills.

### ii) Moderating marks

I am often asked about the possibility of manipulating the PAF system in the first lecture that I introduce the process; I explain how easy it is to spot this and that such marks are not used in the final calculation. My course profiles also reflect that I will moderate all peer assessment and that I will provide a level of moderation in terms of how many marks are used. This serves to increase confidence in the PAF process and may also provide a warning to the minority who are considering such an action.

There are always a couple of students who intentionally use the PAF system to skew results in their favour, or to penalise other team members with whom they have disagreed. This is picked up by looking at their SAPA and the Ratio as detailed in the previous step.

GPA not only calculates these ratios but it will flag those SAPAs and Ratios that are outside a certain range from the average making it very easy to see where this may have been done.

It is recommended that a limit be agreed within the teaching team about how far from the average (1.0) the SAPA and ratios should be allowed to deviate before scores are removed from the PAF calculations. Commonly these limits might be set at 10% or 15% (i.e. for a 10% limit, all SAPAs and ratios greater than 1.10 and less than 0.90 would be highlighted in GPA).

The student comments can be used as further justification of a student using the system to skew PAFs. If you identify scores that do not reflect the rest of the team's marks, and that are not supported by comments or by teaching team observations, the scores should be removed from the PAF calculation.

Table 14, which is a representation of the results screen of GPA, shows an assessment where all scores assigned by the students are within a 20% limit. There is no need to correct any of the scores if the skew limit is 20%, but a skew limit of 15% would mean that scores shown highlighted with dark shading (purple) would need to be removed from the calculation by the ratios shown highlighted with light shading (orange).

Table 14: Sample GPA output showing SAPAs and Ratios

	PAF	SAPA	Score assigned by student					Ratio				
			1	2	3	4	5	1	2	3	4	5
Student 1	0.93	1.10	20	17	20	16	20	1.10	0.89	1.10	0.83	1.10
Student 2	1.25	1.00	25	25	25	25	25	1.00	1.00	1.00	1.00	1.00
Student 3	0.78	0.95	15	16	15	17	15	0.95	1.03	0.95	1.11	0.95
Student 4	1.10	1.18	20	25	20	25	20	0.89	1.18	0.89	1.18	0.89
Student 5	0.94	1.08	20	17	20	17	20	1.08	0.88	1.08	0.88	1.08

GPA will automatically correct PAFs and SAPAs, but for completeness, the formula to correct a PAF is:

$$\text{Corrected PAF}_{\text{Student}} = \frac{\sum (\text{Scores}_{\text{Given to student}} - \text{Skewed score})}{N_{\text{Criteria}} \times 100} \times \frac{N_{\text{Students in team}}}{N_{\text{Students used to calculate peer assessment factor}}}$$

So for Student 1 in Table 2, their new PAF would be:

$$\text{Corrected PAF}_{\text{Student}} = \frac{20+17+20+20}{1 \times 100} \times \frac{5}{4} = 0.96$$

This change from 0.93 to 0.96 is significant and shows how important the moderation process is. It does take time but as per my opening words, the PETS process is not a quick fix.

### iii) Agreeing with the teaching team

Our university policy provides for students' work to be evaluated by an academic rather than a peer. The first step towards fulfilling this requirement is to correct for bias as above. The next step is to agree PAFs with your teaching team. Often mentors and tutors can provide supporting knowledge for unusual PAFs. It is also necessary in the case of unusual PAFs to read the justifications that the students gave for their division of points. This deliberation ensures that contested PAFs can be justified.

*I get my tutors to fill out a form before they leave to study for their own exams. The form simply asks if each student was a) a leader, or b) a loafer. If the latter I ask for a quick comment. This extra piece of information is very helpful when looking at low PAFs that cause students to fail. If the tutor disagrees with the PAF, I will call them in for a discussion and thus ensure that the students final PAF is representative of their efforts.*

## Stage 4, Step 4: Calculate marks

The student's final mark is calculated as shown and will depend on the elements chosen in [Stage 1, Step 1](#). Each part should carry weightings as determined by learning objectives and the weighting of assessments in the course (e.g. 40% team project, 20% team skills, and 40% other assessment).

$$\sum_1^n (\text{Team project mark} \times \text{PAF} + \text{Individual Mark})$$

$$+ \text{TAM} \left( = \text{Team dimension score} \times \frac{\text{Individual mentor meeting score}}{\text{Maximum mentor meeting score}} \right)$$

$$+ \text{Any other assessment}$$

where:

- $n$  is the number of team projects;
- the *team project mark* is that given for the final deliverable(s);
- the *PAF* (Peer Assessment Factor) is calculated as per [Stage 4, Step 2](#);
- the *individual mark* is that given any section specified to be undertaken by the student or pair of students (see [Stage 1, Step 2](#)); and
- the *TAM* (Team Assessment Mark) is calculated as shown. If used, this mark can be formed from mentor meeting scores or the overall team dimension score (see Tables 10 and 11);
- the *team dimension score* is that given to the team by the mentor based on their communication, conflict resolution and overall success; and
- the *individual mentor meeting score* is that achieved by the individual during mentor meetings. It may be transformed into a factor which is applied to the team dimension score by using the maximum possible mentor meeting score to calculate the TAM as shown. The maximum possible mentor meeting score is 15 x the number of meetings if the format specified in Table 10 is used.

## Stage 5: Reflection & Review: Where have we been?

*In this stage, you examine how the PETS process worked and how the students reacted to it so that you can improve what you do in any future course.*

STEP 1	Student focus written evaluation
STEP 2	Internal reflection (instructors, mentors, and tutors)

### Stage 5, Step 1: Student evaluation

#### i) Feedback to the students

Reflection and feedback to teams is essential to capitalise on the semester's learning experiences and to carry forward team skills with cognitive knowledge of what has gone before.

A final mentor meeting is appreciated by students; I have found that the majority want to hear how they performed and discuss successes and mistakes even if there are no marks to be gained. I tend not to make this final meeting compulsory but offer it to any who are interested. It provides an opportunity for the students to reflect on the successes and mistakes of the semester and to gain the mentor's view of what worked and what did not. A period of between 30 and 60 minutes has been found to be sufficient for this discussion.

The meeting may focus on how the group functioned, what obstacles were met, how obstacles were overcome, and what the team has learnt. However, it is recommended that the students take charge of the meeting agenda so that they can gain the maximum benefit from the reflection.

#### ii) Feedback for you

Student feedback<sup>14</sup> is of paramount importance to the team strategies developed for your courses. If you run the final feedback meeting for students as above, then you can use this to gain feedback on the effectiveness of your practice. An editable form for this meeting is attached as D3; it asks direct questions about the strategies. You can remove or add questions about those strategies, forms, or exercises so that it aligns with your trial. You can also include questions on things you were uncertain about or want further information on.

*Students always find something to complain about. Before the introduction of the PETS process, students complained about team management, unresolved personal conflicts, and social loafing; after the introduction of the PETS process, many complain about the process itself. My picture of success therefore not only includes students' satisfaction but their final marks and whether the reason for low marks was a failure in the team process. As the latter has been all but eliminated, I take criticism of the PETS process as a reason to change certain aspects of presentation and/or include a little more information in the early lectures, but not to return to the ad-hoc student management process that I used to employ.*

<sup>14</sup> I would also welcome any feedback on your findings especially if you find a silver bullet.

## **Stage 5, Step 2: Teaching team reflection (instructors, mentors, and tutors)**

In addition to feedback from students, I find that the experiences of all those involved with the delivery of the course are highly valuable. The next logical step is to gain their feedback.

I have found that the best way to do this is to run a 'celebratory' meeting with an agenda that asks for feedback on course delivery, students' successes and difficulties, and of course, the team process. I will leave it to you to structure this meeting but recommend that you do it around some sort of refreshments and that you do not restrict discussion to the PETS process but include the course and any other aspect that the teaching team feels needs improvement or discussion.

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# Appendix A: Common Methods of Team Allocation

Type	Online	In-class
Random	Use a spreadsheet with student details, sort on a column and then assign teams from top to bottom.	Randomly distribute tickets with team names and ask students to find the rest of their team.
Student choice	Use a Wiki table or similar and get students to enter their details.	Ask students to form groups of the required number. A modification of this is to have students form pairs and then to join the pairs up to get to the required number.
Aspirational (What grade does the student aspire to?)	Construct an online poll that asks students what grade they aim to achieve. Assign teams from those with the same aspiration.	Ask students to line themselves up along a wall with 'Aiming for a High Distinction' on one end, and 'Aiming for a Pass' at the other. Then ask them to organise themselves in teams of the required number with their neighbours.
Availability	Construct an online poll that asks students where they live and which day of the week they would like to meet. Assign teams from those with the same availability and proximal location.	Ask students to group themselves in terms of the day of the week that they could meet. Then ask them to group themselves within the group in terms of their location (North, South, East or West) of the campus.
Previous achievement <sup>15</sup>	Group students according to their grade point average or achievement in a previous course.	<i>Not recommended in class as previous achievement is personal information.</i>
Different projects/ skills/ knowledge	Construct an online poll that asks students for the point of difference that you have decided upon. Assign teams from those with the same (or different) aspects.	Ask students to group themselves in terms of the point of difference that you have chosen. Then ask them to organise themselves in teams of the required number with their neighbours.

<sup>15</sup> Top students are not necessarily team players (nor are they very practical). I have often seen teams of students that have achieved lower marks previously outperform the top student groups.

# Appendix B: Team Charter (or Code of Conduct)

## 1. The Team

### 1.1 Team Members

List your team members and their contact details.

Name	Email	Mobile

### 1.2 Team Objectives

What grade does your team want to achieve? All team members need to agree on this. What other outcomes does your team want to achieve?

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### 1.3 Team Roles ([www.123test.com/team-roles-test](http://www.123test.com/team-roles-test))

Name	Preferred Team Roles	Least Preferred Team Roles

### 1.4 Strengths

In addition to the preferred team roles above, what are the individual strengths of team members? For example, one team member may have excellent drawing skills while another team member may have excellent writing skills.

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### 1.5 Team Roles

Are all the necessary roles covered? Where will the team need to devote extra energy? What will be the strategy for ensuring team success given the team make up?

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## 2. Team Dynamics

### 2.1 Team Leader

Who is your team leader and how did that person become team leader? Maybe you have a leader for each section of work or have decided to swap leadership in which case record that decision here.

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### 2.2 Chair for Meetings

Who will chair meetings and how did that person become chair? Will you rotate this role?

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### 2.3 Minute Taker

Who will record the facts, conclusions, and actions as they occur in team meetings? Will you rotate this role?

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### 2.4 Meeting Time, Location, and Length

When and where will you try to hold team meetings and how long will these meetings be?

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### 2.5 Communication Methods

How will your team stay in touch outside of meetings?

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## 2.6 File Sharing and Storage

How will you share files and where will you store files? Will you have a template for various documents and who will create this?

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## 2.7 File Naming Convention

How will you name files to ensure versions and team member's inputs are recorded?

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## 2.8 Decision Making Procedure

How will your team make key decisions? Will you have a formal procedure?

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## 2.9 Poor Team Member Performance

How will you handle poor performance for example, in terms of meeting attendance, standard of work, or missed deadlines?

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## 2.10 Conflict Resolution

How will you reduce conflict in your team? How will you resolve any conflicts that arise?

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### 3. The Project

3.1 Project Title: \_\_\_\_\_

#### 3.2 Project Objectives

List the objectives of your project and use SMART as a guide in defining your objectives:

- S – Specific (the objective only conjures one impression in your mind)
- M – Measurable (you can determine how much of the objective is accomplished)
- A – Attainable (this objective is not impossible)
- R – Relevant (this objective is important to the success of your project)
- T – Time bound (this objective must be satisfied by a known time)

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#### 3.3 Project Outcomes

What will your project deliver? What are the expected project outcomes?

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## 4. Timetable

### 4.1 Team Member Availability

When do team members have free time, from their own weekly timetables? These can be potential meeting times. Also note down specific days when team members will not be available due to some other commitment.

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### 4.2 Conflicting Deadlines

Identify the dates and/or time periods when some or all team members may need to suspend work on the project due to university or other commitments.

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### 4.3 Project Deadlines

Note all deadlines concerning your project. Identify key milestones and ensure that you work within them.

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### 4.4 Meeting Time

Identify and agree on a regular (weekly?) meeting time.

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# Appendix C: An overview of Teams101x



## ABOUT THE COURSE

Teams are a part of our professional and personal lives but sometimes the experience of working in a team can feel like an uphill battle. The aim of this course is to provide participants with information and activities that will develop their understanding of team dynamics. It also offers strategies for addressing some of the common issues that effect team performance, such as team conflict or dysfunction.

## INTENDED AUDIENCE

This course has been designed as an introductory self-paced course for anyone working in any team, in any role.

## EXPECTED LEARNING OUTCOMES

By the end of this course, participants will be able to:

- Identify the difference between a group and a team
- Understand how the personalities and role preferences of team members influence team dynamics
- Identify their own preferences, strengths and weaknesses in terms of team role types
- Understand how to use communication techniques to improve teamwork
- Understand the importance of addressing emergent team issues before they develop into team conflict
- Identify strategies for addressing team performance by resolving team conflict or dysfunction.

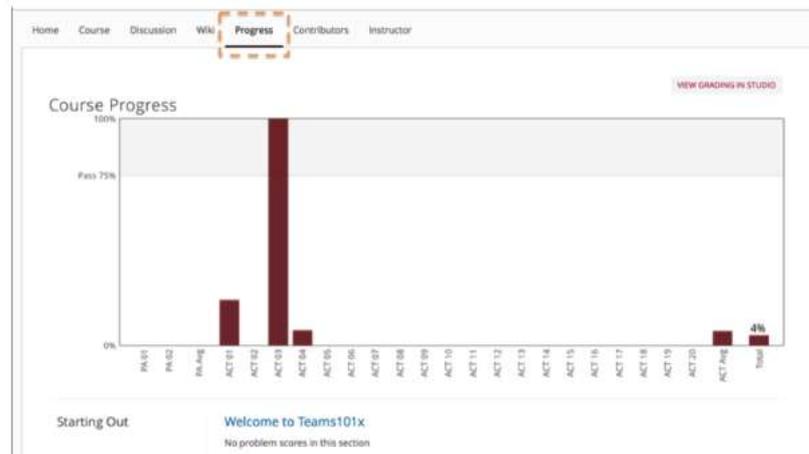
## COURSE LEARNING PATHWAYS

There are two suggested learning pathways for this course. The first is for participants who intend to obtain a certificate. The second is for participants who are only interested in specific topics.

To obtain a Verified certificate, participants will need to complete specific activities throughout the course. Sections containing these activities can be identified in the left-hand side menu, as shown on the right.



Participants can also check their completion of the activities required for a Verified certificate by accessing their individual progress report. This is accessible by clicking on 'Progress' in the menu bar, as outlined by the orange dashes in the image on the right.



Participants can choose to apply for a verification certificate at any point in time during their studies. However, this needs to occur before the official course end date.

The second learning pathway is for students who are only interested in exploring specific topics and who are not interested in obtaining a Verified certificate.

## COURSE OUTLINE

As a guide we estimate that completion of each section will take between 30 minutes to 45 minutes. Section 3 contains the most detailed activity of the course and should take between 45 minutes and an hour.

### SECTION 1 What is a team?

- Teams: An introduction
- The lifecycle of a team
- Reflect on your experiences of teams

### SECTION 2 Personalities and role preferences in teams

- Teamwork requires many roles
- Personal traits and attributes
- Belbin team role types

### SECTION 3 Critique a hypothetical team

- Meet our hypothetical project team
- Peer assessment: Team roles and dynamics (Part 1)
- Peer assessment: Team roles and dynamics (Part 2)

### SECTION 4 Everyday teamwork planning tools

- Tips for new teams
- Team meetings
- Project planning
- Team decision-making

### SECTION 5 Leadership, assertiveness and cooperation

- Leadership
- Assertiveness and cooperation

### SECTION 6 Maintaining your team

- Effective communication
- Embracing diversity
- Staying ahead of team conflict

### SECTION 7 Addressing team conflict

- The reality of team conflict and dysfunction
- How conflict escalates
- Addressing team conflict
- Addressing team dysfunction
- DIY team problem solving diagnosis tool

## OVERVIEW OF ACTIVITIES IN EACH SECTION

### SECTION 1

#### What is a team?

- Short answer x4
- Discussion x1
- Poll x1
- Questionnaire x2

### SECTION 2

#### Personalities and role preferences in teams

- Poll x1
- Discussion x2
- Drag and drop x1
- Drop down x1
- MCQ x2

### SECTION 3

#### Critique a hypothetical team

- Short answer x4
- Peer assessment x2

### SECTION 4

#### Everyday teamwork planning tools

- No activities

### SECTION 5

#### Leadership, assertiveness and cooperation

- Poll x2
- Discussion x2
- Short answer x1

### SECTION 6

#### Maintaining your team

- MCQ x3
- Drag and drop x2
- Discussion x1

### SECTION 7

#### Addressing team conflict

- Questionnaire x1
- Short answer x2
- Discussion x1

## COURSE ASSESSMENT AND COMPLETION REQUIREMENTS

This course contains both ungraded and ungraded activities. If you want to receive a Verified Certificate then you will need to complete all of the graded assessment pieces (as described in Course Learning Pathways).

You will need to obtain an overall mark of at least 75%, or over, from all of the graded assessment items in order to pass the course. If you login to Teams101x, and click "Progress," you can see how well you're doing throughout the course.

# Appendix D: Forms

[For you to tailor to your needs.]

## D-1 Individual Structured Reflection

Name: \_\_\_\_\_ Team: \_\_\_\_\_ Date: \_\_\_\_\_

1. Circle the rating that best describes your team for each of the three items below:

a. How productive was the group overall?

Accomplished some but not all of the project's requirements	Met project requirements but could have done much better	Accomplished all goals that we set for ourselves	Went way beyond what we had to do exceeding even our own goals
-------------------------------------------------------------	----------------------------------------------------------	--------------------------------------------------	----------------------------------------------------------------

b. Which of the following best describes the level of conflict at group meetings?

No conflict, everyone seemed to agree on what to do	There were disagreements, but they were easily resolved	Disagreements were resolved with considerable difficulty	Open warfare: still unresolved
-----------------------------------------------------	---------------------------------------------------------	----------------------------------------------------------	--------------------------------

2. Rate yourself and each team member (1 Disagree, 2 Tend to disagree, 3 Tend to agree, 4 Agree)

Team member's name	SELF				
Took a leadership role					
Helped team overcome differences					
Fully engaged in discussions during meetings					
Often excessively dominated team discussions					
Contributed useful ideas					
Kept open mind/ willing to consider other ideas					
Encouraged team to complete project on time					
Delivered work when promised/ needed					
Had difficulty negotiating with team members					
Distribute 100 points for overall contribution to the team's effort (include work, communication, problem solving etc.)					

3. Review items 1 and 2 and write a brief description of any problems or conflicts you encountered in working with this group and how they were resolved. (Continue over the page if necessary.)

## D-2 Individual Peer Assessment (Manual Form)

Name: \_\_\_\_\_ Team: \_\_\_\_\_ Date: \_\_\_\_\_

Assign scores that reflect how you really feel about the extent to which the other members of your team contributed to your team's performance. This is your only opportunity to reward the members of your team who worked hard on your behalf. **If you give everyone the same score you will be hurting those who did most and helping those who did the least.**

1. List the name of each team member.
2. Evaluate the contributions of each person to the deliverable by distributing 100 points among them for each of the categories.
  - Communication/ Collaboration = attendance and participation at meetings, email/ SMS/ discussion board response
  - Contribution to overall project = workload including: scoping, research, design, testing, analysis, reporting, editing, final submission production
  - Timeliness = ability to meet agreed contribution times
  - Performance = standard and completeness of work
3. Include a comment for each person to justify your scores.

NAME	Communication/ Collaboration	Contribution to overall project	Timeliness	Performance	Total	COMMENT
Yourself						
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>		

## D-3 Student Feedback

Replace items in italics with your activities, and tailor form to suit.

Complete this form after submission of the final team project; it has been designed to get your feedback on the processes that have been used this semester to ensure that your team was successful.

Team name: \_\_\_\_\_

### 1. Team training and forming

In terms of training and team formation, the exercise was:	No use	Some use	Useful	Essential
<i>Exercise 1 (Week X)</i>				
<i>Exercise 2 (Week X)</i>				

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### 2. Team processes

The following were used to facilitate the team:	Never	Somewhat	Often	Always
Meeting agendas				
Meeting minutes				
Gantt charts				
Online group page				

Other systems used to facilitate the team: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### 3. Mentor meetings – timing

The meeting was:	Wrongly timed	Little use at this time	Some use at this time	Perfectly timed
<i>Meeting 1 (Week X)</i>				
<i>Meeting 2 (Week X)</i>				
<i>Meeting 3 (Week X)</i>				
<b>Final feedback meeting (Week X)</b>				

Comments on the timing of mentor meeting: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

#### 4. Mentor Meetings – Information

The mentor input was:	No use	Little use	Useful	Essential
Technical input from mentors				
Time management input from mentors				
Team facilitation input from mentors				

Comments on mentor meetings: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

#### 5. Learning Outcomes

What did you learn about team facilitation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

What do you still need to work on: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Appendix E: Tuckman's stages in team development

## E-1 An overview

Stage	Tasks	Group Structure	Potential Problems
<b>Forming</b>	Identify task and methods to accomplish. Establish rules for behaviours and how to handle group conflict. Decide what information is needed.	Considerable anxiety, testing to discover the nature of the situation, what help can be expected from the facilitator, and what behaviours will be appropriate or inappropriate.	Impatience of some members with abstract discussions. No clear focus on task as evidenced by irrelevant discussions or complaining about organisational problems.
<b>Storming</b>	Question the value and feasibility of the task. Choose sides within group and draw divisional lines.	Conflict emerges among sub-groups; the authority/ competence of individuals is challenged. Opinions polarise. Individuals react against efforts of the others to control them.	Argument among members even if there is agreement on issues. Tension, jealousy, lack of unity. Establishment of unobtainable goals.
<b>Norming</b>	Establish and maintain realistic group parameters for behaviour and performance. Establish plans and work standards. Develop communication of views.	The group begins to harmonise; it experiences group cohesion or unity for the first time. Norms emerge as those in conflict are reconciled and resistance is overcome. Mutual support develops.	Conflict avoidance in an attempt to promote harmony.
<b>Performing</b>	Understanding of members strengths and weaknesses. Constructive and effective work on the task.	The group structures itself or accepts a structure which fits most appropriately its common task. Roles are seen in terms functional to the task and flexibility between them develops.	
<b>Mourning</b>	Public celebration/ closure ceremony to mark the formal end of the team.	The group must accept that the project is complete and disband gracefully.	Sense of loss and anxiety at having to break-up.

## E-2 The Teamwork questionnaire<sup>16</sup>

The objective of this questionnaire is to identify what stage of the teamwork model your team is presently operating in. It contains statements about teamwork. Next to each question indicate how rarely or often your team displays each behaviour by using the following scoring system:

1 - Almost never 2 – Seldom 3 – Occasionally 4 – Frequently 5 – Almost always

1. \_\_\_\_ We try to have set procedures or protocols to ensure that things are orderly and run smoothly (i.e. minimise interruptions, everyone gets the opportunity to have their say).
2. \_\_\_\_ We are quick to get on with the task on hand and do not spend too much time in the planning stage.
3. \_\_\_\_ Our team feels that we are all in it together and shares responsibilities for the team's success or failure.
4. \_\_\_\_ We have through procedures for agreeing on our objectives and planning the way we will perform our tasks.
5. \_\_\_\_ Team members are afraid to ask others for help.
6. \_\_\_\_ We take our team's goals and objectives literally, and assume a shared understanding.
7. \_\_\_\_ The team leader tries to keep order and contributes to the task at hand.
8. \_\_\_\_ We do not have fixed procedures, we make them up as the task or project progresses.
9. \_\_\_\_ We generate lots of ideals, but we do not use many because we fail to listen to them and reject them without fully understanding them.
10. \_\_\_\_ Team members do not fully trust the others members and closely monitor others who are working on a specific task.
11. \_\_\_\_ The team leader ensures that we follow the procedures, do not argue, do not interrupt, and keep to the point.
12. \_\_\_\_ We enjoy working together; we have a fun and productive time.
13. \_\_\_\_ We have accepted each other as members of the team.
14. \_\_\_\_ The team leader is democratic and collaborative.
15. \_\_\_\_ We are trying to define the goal and what tasks need to be accomplished.
16. \_\_\_\_ Many of the team members have their own ideas about the process and personal agendas are rampant.
17. \_\_\_\_ We fully accept each other's strengths and weakness.
18. \_\_\_\_ We assign specific roles to team members (team leader, facilitator, time keeper, note taker, etc.).
19. \_\_\_\_ We try to achieve harmony by avoiding conflict.
20. \_\_\_\_ The tasks are very different from what we imagined and seem very difficult to accomplish.
21. \_\_\_\_ There are many abstract discussions of the concepts and issues, some members are impatience with these discussions.
22. \_\_\_\_ We are able to work through group problems.
23. \_\_\_\_ We argue a lot even though we agree on the real issues.
24. \_\_\_\_ The team is often tempted to go above the original scope of the project.
25. \_\_\_\_ We express criticism of others constructively
26. \_\_\_\_ There is a close attachment to the team.
27. \_\_\_\_ The goals we have established seem unrealistic.
28. \_\_\_\_ Although we are not fully sure of the project's goals and issues, we are excited and proud to be on the team.
29. \_\_\_\_ We often share personal problems with each other.
30. \_\_\_\_ There is a lot of resisting of the tasks on hand and quality improvement approaches.
31. \_\_\_\_ We get a lot of work done.

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<sup>16</sup> Adapted from Clark, D. (1998) Teamwork questionnaire, Accessed: 28 June 2004, <http://www.nwlink.com/~donclark/leader/teamsuv.html>.

## Recording your results

Mark the score of each item on the questionnaire in the table below, and total the four columns.

Item	Score	Item	Score	Item	Score	Item	Score
1.	_____	2.	_____	4.	_____	3.	_____
5.	_____	7.	_____	6.	_____	8.	_____
10.	_____	9.	_____	11.	_____	12.	_____
15.	_____	16.	_____	13.	_____	14.	_____
18.	_____	20.	_____	19.	_____	17.	_____
21.	_____	23.	_____	24.	_____	22.	_____
27.	_____	28.	_____	25.	_____	26.	_____
29.	_____	31.	_____	30.	_____	32.	_____
<b>Total</b>	_____	<b>Total</b>	_____	<b>Total</b>	_____	<b>Total</b>	_____
Forming Stage		Storming Stage		Norming Stage		Performing Stage	

## Interpreting the results

The lowest score possible for a stage is 8 (Almost never) while the highest score possible for a stage is 40 (Almost always).

The highest of the four scores indicates which stage you perceive your team to normally operates in. If your highest score is 32 or more, it is a strong indicator of the stage your team is in. The lowest of the three scores is an indicator of the stage your team is least like. If your lowest score is 16 or less, it is a strong indicator that your team does not operate this way. If two of the scores are close to the same, you are probably going through a transition phase, except:

If you score high in both the Forming and Storming Phases then you are in the Storming Phase

If you score high in both the Norming and Performing Phases then you are in the Performing Stage.

If there is only a small difference between three or four scores, then this indicates that you have no clear perception of the way your team operates, or the team's performance is highly variable, or that you are in the storming phase (this phase can be extremely volatile with high and low points).

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