



SPARK^{PLUS} Supporting Resources

Version 2.1



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INTRODUCTION

In my ALTC Teaching Fellowship I have focused on assisting academics to adopt, design and implement collaborative learning-oriented assessments many of which have incorporated the innovative use of self and peer assessment.

My aim was to support academics to develop assessment tasks that encourage students to take more responsibility for their own learning, learn from their mistakes, explore their learning through peer conversations and to develop their professional attributes including judgement, reflection and critical evaluation.

My tool of choice when using self and peer assessment is SPARK^{PLUS}. This is not only because I am the project leader, but that I genuinely believe that is the best tool available. In particular, to my knowledge it is the only tool that encourages academic honesty through its capacity to both detect suspected free riders, saboteurs and over raters and mitigate their impact on the self and peer assessment process.

This document has been produced to assist instructors in using SPARK^{PLUS} in their classes. It focuses on providing supporting material including information to be included in assessment and subject guides. This document is not a user guide - that can be found at <http://spark.uts.edu.au/>

In addition to this document I encourage you to watch the video presentations series designed to assist academics to use SPARK^{PLUS} to evaluate and provide feedback on an individual's contribution to a team task, activity or project (<http://sparkplus.com.au/factors/>).

ACKNOWLEDGEMENT

I would like to thank Anne Gardner and Mark Freeman who provided feedback that assisted me in writing this document.

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SPARK^{PLUS} INSTRUCTIONS FOR STUDENTS

Self and Peer Assessment of Contribution to a Team Project

Getting started

When you go to the SPARK^{PLUS} webpage you will see the following screen, or something similar:



Logon Screen

If you have not logged on before or you have forgotten your password, select the link ***Forgotten my password*** and enter your account ID and a new password will be sent to you. The pop-up window will also tell you the e-mail address to which your password has been sent, as shown in the figure below. If this address is incorrect please notify your instructor.



Password Request Popup

Once you have received your password logon to SPARK^{PLUS}. Please be aware that passwords are **case sensitive**.

Student View

When you logon the screen you see will depend on the period: Pre Assessment, Assessment or Post Assessment and the type of activity you have to do (team contribution, benchmarking etc).

Student's Assessment Screen

1 Changing Password

To change your password choose the link behind your name; eg Hi **Fred**. This will bring up a screen that allows you to change your password and modify other details of your account (see below).

Student's Screen to modify your account details and change your passwords.

Select Modify and change your password. Passwords need to be from six to 10 characters in length.

Another useful feature available in this window is for you to enter your preferred name if you are known to your peers by a different name than you are listed in the student records.

For example, let's say that a student's name is Fred Flintstone., but he is known to his group as Joe Flintstone. If Fred enters his preferred name as Joe, then SPARK^{PLUS} will add this name to identify him to his peers. Eg SPARK^{PLUS} will show the student's name as Fred (Joe) Flintstone and the link previously described will change from Hi **Fred** to Hi **Joe**.

When you have finished modifying your details, select **save** and return to the assessment screen.

2 Choosing the Subject and Task

Use the pull down menus at the top of the screen to select the Subject and Team Task for which you want to enter assessments.

If you need to enter ratings into more than one subject or need to complete a number of tasks within a subject ensure that you select the appropriate subject and/or task using the **select subject** and **select task** drop-down menus.

3 View your team

You can see your peers for an individual task by clicking on either the Group Name window or the select peers to view window. If you click on the Group Name window the following screen will appear:

SPARK^{PLUS} Self & Peer Assessment Resource Kit

2.0.0 RC

Feedback

Hi Joe

Due date: 25 Mar 2011 8:00am
Instructor: keth willey

Period: Assessment

1. Select the subject in which you are rating self and peers.
2. Rate yourself first
3. Select the peers in your group and rate them for each of the rating criteria

Key for rating:
WB = Well Below Average
BA = Below Average
AV = Average
AA = Above Average
WA = Well Above Average

SELECT SUBJECT: 101 TestSubject Autumn 2011

SELECT TASK: Contribution to Group Project

GROUP NAME: Bedrock

SELECT PEERS to VIEW: Fred (Joe) Flintstone (rated)

Save Logout

EFFICIENT FUNCTIONING OF GROUP

Manage Groups - Mozilla Firefox

sparkplus.com.au https://

SPARK Groups

My Group	: Bedrock		
My Peers	: Name	Email	Status
	Joe Flintstone	-	Confirmed
	Wilma Flintstone	-	Confirmed
	Barney Rubble	-	Confirmed
	Betty Rubble	-	Confirmed

Group Contact : ☐ Make me the contact for this group

If you wish to change the members of your team or to delete your team, please contact the subject instructor.

Screen showing a Student's Group members.

4 Entering Self Assessments

You are required to enter and save your self assessment first.

If this is the first time you have opened this task you will need to click on the slider bar for the orange rating bar to appear.

You can enter your assessments by moving the slider to the appropriate rating, or if the button option was chosen, by moving the cursor to the appropriate button. Once you have finished your self assessment you should select **save**. You may modify your self-assessment while you are entering your assessments for other students.

SPARK^{PLUS}
Self & Peer Assessment Resource Kit
2.0.0 RC01

Feedback

Hi Joe ,
Due date: 25 Mar 2011 8:00am
Instructor: keith willey

Period: Assessment

1. Select the subject in which you are rating self and peers.
2. Rate yourself first
3. Select the peers in your group and rate them for each of the rating criteria

Key for rating:
WB = Well Below Average
BA = Below Average
AV = Average
AA = Above Average
WA = Well Above Average

SELECT SUBJECT:
101 Test Subject Autumn 2011

SELECT TASK:
Contribution to Group Project

GROUP NAME:
Bedrock

SELECT PEERS to VIEW:
Fred (Joe) Flintstone (rated)

Save Logout

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

WB BA AV AA WA
WB BA AV AA WA

Your ratings of Joe Flintstone

Please note that your ratings will not be taken into the calculation until you have assessed all your peers.

Save Logout

Self Assessment Screen

5 Entering Peer Assessments

Once you have entered and **saved** your self assessments the Peer Assessment screen opens automatically. The screen you see will depend on which options your instructor has chosen. Peers can either be assessed **One at a Time** or **All at Once** (see below). When peers are rated one at a time you select the peer to assess using the pull down menu **SELECT PEERS to VIEW**. Note the **blue triangle** on the slider shows how you rated yourself, providing a comparison to assist you in assessing your peer's work.

SPARK^{PLUS}
Self & Peer Assessment Resource Kit
2.0.0 RC01

Feedback

Hi Joe ,
Due date: 25 Mar 2011 8:00am
Instructor: keith willey

Period: Assessment

1. Select the subject in which you are rating self and peers.
2. Rate yourself first
3. Select the peers in your group and rate them for each of the rating criteria

Key for rating:
WB = Well Below Average
BA = Below Average
AV = Average
AA = Above Average
WA = Well Above Average

SELECT SUBJECT:
101 Test Subject Autumn 2011

SELECT TASK:
Contribution to Group Project

GROUP NAME:
Bedrock

SELECT PEERS to VIEW:
Wilma Flintstone (rated)
Fred (Joe) Flintstone (rated)
Wilma Flintstone (rated)
Dorothy Rubble (rated)
Betty Rubble (rated)

WB BA AV AA WA
WB BA AV AA WA

Feedback for Wilma Flintstone (8 words)
Excellent work Wilma, great contribution to the team.

Self rating
Your ratings of Wilma Flintstone

Please note that your ratings will not be taken into the calculation until you have assessed all your peers.

Save Logout

Peer Assessment Screen (one at a time)

Assess all Peers at once Assessment Screen

Note: Comment boxes are only shown if this function has been selected by the instructor.

If the task is set up to assess all peers at once you can enter your assessments by moving the slider to the appropriate rating, or if the button option was chosen, by moving the cursor to the appropriate button. Once you have finished entering your assessments you need to select **Save**. You may logon and modify your assessment any time during the rating period. However, you must hit **Save** to update their assessments in the database.

6 Post Assessment Period

In the post assessment period what you see depends on what options your instructor has chosen to publish.

If they have chosen to publish your rated profile you will see your own self rating (upper blue triangle) and the average rating you received from your peers (lower orange triangle) as shown in the following screen. Your instructor may choose to publish other options including feedback comments, Assessment factors etc.

Screen showing student's self-assessment and average peer assessment in the Post Assessment period. The content of this screen depends on what options the course instructor has chosen to publish.

SPARK^{PLUS} INSTRUCTIONS FOR STUDENTS

Benchmarking Judgement

What to do First

When you go to the SPARK^{PLUS} webpage you will see the following screen or something similar:

Logon Screen

If you have not logged on before or you have forgotten your password, select the link ***Forgotten my password*** and enter your account ID and a new password will be sent to you. The pop-up window will also tell you the e-mail address to which your password has been sent, as shown below. If this address is incorrect please notify your instructor.

Password Request Popup

Once you have received your password logon to SPARK^{PLUS}. Please be aware that passwords are **case sensitive**.

Student View

When you logon the screen you see will depend on the period: Pre Assessment, Assessment or Post Assessment and the type of activity you have to do (team contribution, benchmarking etc).

Use the pull down menus at the top of the screen to select the Subject and Task for which you want to enter assessments.

Student's Assessment Screen

1 Changing Password

To change your password choose the link behind your name; eg Hi **Fred**. This will bring up a screen that allows you to change your password and modify other details of your account (see below).

Student's Screen to modify your account details and change your passwords.

Select Modify and change your password. Passwords need to be from six to ten characters in length.

Another useful feature available in this window is for you to enter your preferred name if you are known to your peers by a different name than you are listed in the student records.

For example, let's say that a student's name is Fred Flintstone., but he is known to his group as Joe Flintstone. If Fred enters his preferred name as Joe, then SPARK^{PLUS} will add this name to identify him to his peers eg for group activities SPARK^{PLUS} will show the student's name as Fred (Joe) Flintstone and the link previously described will change from Hi **Fred** to Hi **Joe**.

When you have finished modifying your details select **save** and return to the assessment screen.

2 Entering Your Benchmarking Assessments

If this is the first time you have opened this task you will need to click on the slider bar for the orange rating bar to appear.

You can enter your assessments by moving the slider to the appropriate rating, or if the button option was chosen, by moving the cursor to the appropriate button. Once you have finished entering your assessments you should select **Save**. You may logon and modify your assessments any time during the rating period. However, you must hit **Save** to update assessments in the database.

Note: Comment boxes are only shown if this function has been selected by the instructor.

SPARK^{PLUS}
Self & Peer Assessment Resource Kit

Hi Joe ,
Due date: 3 Jul 2011 1:00pm
Instructor: keith willey

Period: Assessment

1. Drag the sliders for each of the criteria
2. Enter feedback if necessary
3. Click Save

Rating Key:
Z = Unsatisfactory
P = Pass
C = Credit
D = Distinction
HD = High Distinction

SELECT SUBJECT:
101 Test Subject Autumn 2011

SELECT TASK:
Benchmarking my Judgement

Save Logout

WRITTEN COMMUNICATION

1. The objective of the report, the method and the conclusions is easily understood by the intended readership.
2. The report is concise and free of grammar and spelling mistakes

Enter your Feedback (3 words)
Please enter comments to explain your ratings:
this is really excellent work.

Your rating

Benchmarking Assessment Screen

3 Post Assessment Period

In the post assessment period what you see depends on what options your instructor has chosen to publish.

If they have chosen to publish your rated profile you will see your rating (blue triangle on the top of the slider), the instructor's rating (orange bar) and the average rating of your peers (orange triangle on the bottom of the slider) as shown below:

The screenshot displays the SPARK PLUS interface during the post-assessment period. On the left, a sidebar shows the user's name (Hi Joe), due date (29 Jun 2011 1:00pm), instructor (keith willey), and period (Post-Assessment). A 'WELL DONE!' message indicates the rating period is over. A rating key defines the grades: Z (Unsatisfactory), P (Pass), C (Credit), D (Distinction), and HD (High Distinction). The main area shows the selected subject (101 Test Subject Autumn 2011) and task (Benchmarking my Judgement). Under 'WRITTEN COMMUNICATION', two criteria are listed with corresponding rating buttons (Z, P, C, D, HD). The first criterion is rated 'C' (Credit) by the student, 'P' (Pass) by the instructor, and has an average peer rating of 'D' (Distinction). The second criterion is rated 'Z' (Unsatisfactory) by the student, 'P' (Pass) by the instructor, and has an average peer rating of 'D' (Distinction). A text box for comments shows 'this is really excellent work.' Below this is the 'Instructor feedback' section with the comment 'These comets explain my ratings'. At the bottom, the overall rating is 'C' (Credit) and the overall score is 83. A legend at the bottom right identifies the symbols: a blue triangle for 'Self rating', an orange bar for 'Instructor's rating', and an orange triangle for 'Average student rating'.

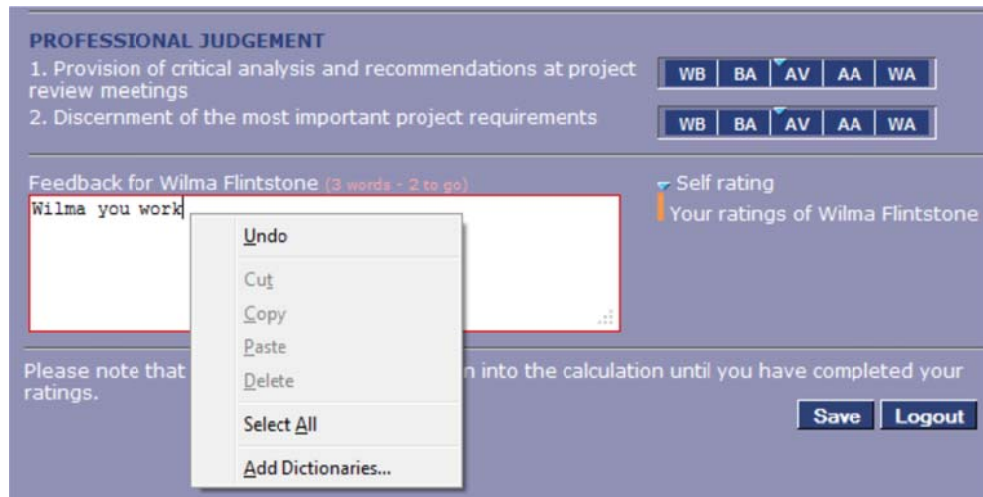
Screen showing student's self-assessment and the average assessment of their peers in the Post Assessment period. The content of the screen depends on what options the course instructor has chosen to publish.

Depending on the options your instructor chose to publish, you may also see boxes containing your and your instructor's comments explaining your respective ratings and/ or a Benchmarking score out of a 100.

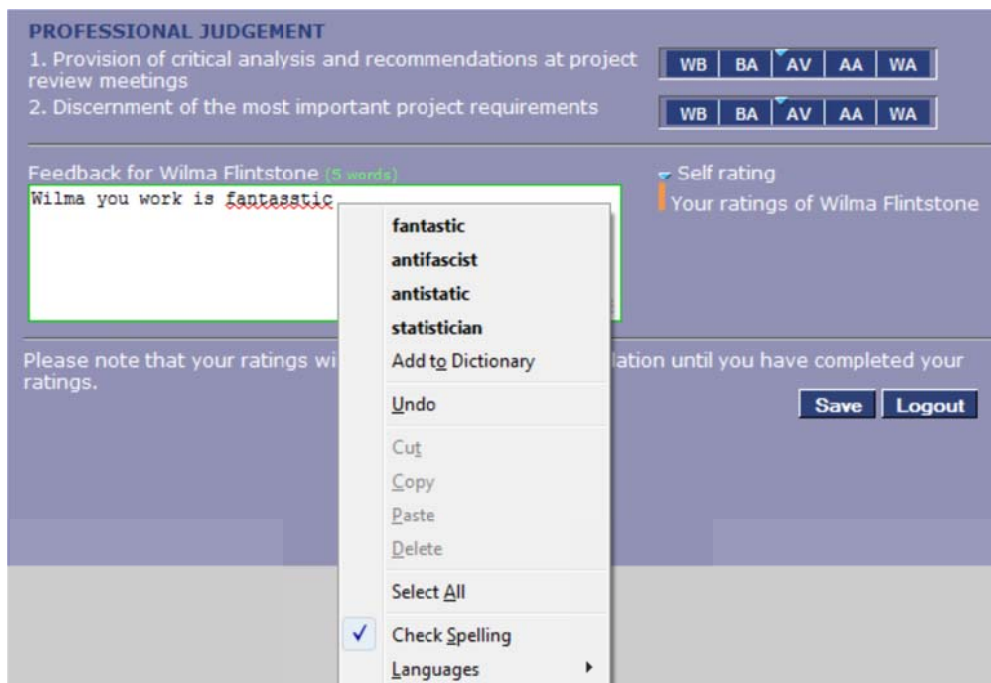
ACTIVATING SPELLCHECKER

While SPARK^{PLUS} will work with any web browser we recommend using Mozilla Firefox. When using Firefox we recommend that you load the dictionary feature to provide spell checking for any comments you enter into SPARK^{PLUS}.

To load the spellchecker left click to activate a text box. Then right click and select Add Dictionaries (see below).



Choose your appropriate English Dictionary (Australian) and follow the prompts to add it to Firefox. Close and re-open your browser to load the dictionary.



After loading the dictionary, spelling errors will be identified by a red underline. To correct spelling right click on the misspelt word and choose one of the suggested options.

EXAMPLES OF INFORMATION TO INCLUDE IN STUDENT SUBJECT GUIDE

In this section are some examples of information that you may want to include in your subject and or assessment outline.

Self and Peer Assessment of Individual Contribution to a Team Project Using SPARK^{PLUS}

SPARK^{PLUS} is an online tool that will be used to Self and Peer Assessment and provide feedback on your and your group members' contribution to the group project.

Based on the ratings of each group member against criteria SPARK^{PLUS} automatically produces two weighting factors.

The SPA or Self and Peer Assessment factor is an individual performance factor that measures how the group overall viewed the individual contribution of each team member.

$$\text{SPA factor is proportional to } \frac{\text{Total ratings for individual team member}}{\text{Average of total ratings for all team members}}$$

This SPA factor will be used to change your group project mark into an individual mark.

$$\text{Individual mark} = \text{group mark} * \text{Individual's SPA}$$

For example, if a group receives 80/100 for their project and a student in that group receives a SPA factor of 0.9 for their contribution (reflecting a lower than average team contribution), the student will receive an individual mark of 72.

$$\begin{aligned}\text{Individual mark} &= 80 * 0.9 \\ &= 72\end{aligned}$$

The maximum mark an individual can achieve will be **capped at 100%** reflecting the maximum available mark for demonstrating the learning outcome achievement. For example, if a group receives 98/100 for their project and a student in that group receives a SPA factor of 1.05 for their contribution (reflecting a higher than average team contribution), the student will receive an individual mark of 100.

$$\begin{aligned}\text{Individual mark} &= 98 * 1.05 \\ &= \cancel{103} \text{ capped at } 100.\end{aligned}$$

The second factor calculated is the SAPA factor. This is the ratio of a student's own self assessment rating compared to the average rating of their contribution by their peers. Hence, it provides a comparison of the team's and an individual's assessment of their performance.

$$\text{SAPA Factor} = \sqrt{\frac{\text{Self ratings for individual team member}}{\text{Average of ratings for individual by peer team members}}}$$

The SAPA factor provides students with feedback about how the rest of the group perceives their contribution. For example, a SAPA factor greater than 1 means that a student has rated their own performance higher than they were rated on average by their peers. Conversely, a SAPA factor less than 1 means that a student has rated their own performance lower than they were rated on average by their peers.

Typically, SAPA factors between 0.95 and 1.05 (your assessment is within approximately 10% of your peers) reflect that your assessment of your contribution is roughly in agreement with the average assessment of your contribution by your team.

SAPA factors above 1.1 reflect that you believe you contributed more (> 120%) to the team activity

than on average your team believes you contributed. Conversely, SAPA factors below 0.9 reflect that your team on average believes you contributed more (< 80%) to the team activity than you believe you did.

Making Your Assessments

You will be required to use your judgement to rate the relative contribution of yourself and your team members to a number of team activities specified by criteria. The evaluations will be comparative evaluations (Norm-referenced assessment) between you and your group peers. That is, you are rating your and your peers' performance relative to each other. For example if all team members have contributed the same on any particular criterion, then all team members should be rated average for this criterion, even if this achievement is high.

Furthermore, if no team member made a contribution on a particular criterion, then the average team contribution is zero and all team members should be rating as average for this criterion. This is an extreme example, normally at least one team member will have contributed more than their peers in respect to any particular criterion and hence would be rated above average. The idea is that the average of the individual ratings you gave each team member on any criterion should be approximately average (see figure below). Hence, it is not possible for all team members to have above average relative performance on any given criterion.

EFFICIENT FUNCTIONING OF GROUP				
1. Organising the team and ensuring things get done				
Wilma Flintstone				
Fred Flintstone				
Barney Rubble				
Betty Rubble				

▼ Click to hide peers				
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Exemplar ratings for one criterion of this team

You will also be required to provide feedback to support/explain your ratings. These ratings and feedback comments will remain confidential, that is you will not be identified when the results are viewed by individual team members. So you can be comfortable to honestly report your assessment ratings.

Both factors for each student will be released to all group members.

This idea of using SPARK^{PLUS} is not only to make group work fairer and provide feedback on your performance but to encourage the development of your professional skills. These skills include giving and receiving both positive and negative feedback, conflict resolution, collaboration, critical evaluation and developing your professional judgement. If you successfully achieve these learning outcomes your group experience should be productive. Teams that contain students who do not adequately participate in group activities and/or develop their teamwork skills often have friction between group members.

Each exercise will involve assessing your contribution and that of your group members to areas of the project specified by criteria. The evaluations will be used to convert the group mark component of your project into an individual student mark. So if you don't do the work you will not get the marks. Each group will also have to participate in a number of group feedback sessions held during the tutorial sessions (see subject schedule for dates).

We do not recommend awarding marks for compliance

There is a regular tendency to include compliance measures to encourage students to engage with and/or complete their self and peer assessment activities. For example one academic commented, “*if I didn't give students marks for completing SPARK^{PLUS} then no one would complete the exercise*”.

I do not recommend awarding marks to students for activities that do not demonstrate your subject's learning outcome achievement.

See the work of Roy Sadler including: D. R. Sadler, "Fidelity as a precondition for integrity in grading academic achievement," *Assessment & Evaluation in Higher Education*, vol. 35, pp. 727-743, 2012/04/15.

Rather I recommend instructors focus on developing a high-quality learning opportunity and design associated scaffolding aimed at moving students towards approaching this activity with a learning focus. Scaffolding measures could be described as being persuasive rather than punitive in that there is no summative penalty for non-compliance.

I also recommend for all assessment activities (both summative and formative) including the use of SPARK^{PLUS} that academics should explain to students:

- 1) why they designed the assessment activity the way they did.
- 2) what learning opportunities the activity provides the students
- 3) how students can evaluate their learning from the activity
- 4) how it is going to impact on their reality (enable them to see the world differently)

K. Willey and A. Gardner, ‘Collaborative Learning Frameworks to Promote a Positive Learning Culture’ 2012 *Frontiers in Education Conference, Soaring to New Heights in Engineering Education* Seattle, Washington, 2012.

I do however acknowledge that it may take time to develop clearly articulated scaffolding aimed at changing students' learning culture and many academics on first using SPARK^{PLUS} include some form of compliance measure to promote participation. If this is the case I recommend that marks are at least deducted, rather than awarded for completing SPARK^{PLUS} assessments.

For example the following is an extract from a subject guide:

The development of your feedback skills and judgement through completing the SPARK^{PLUS} assessments and participating in the associated feedback sessions is an assessable part of your project. As such if you fail to complete these assessment tasks you cannot be awarded the associated marks. The deduction for not completing these assessment tasks for each part of the project are listed below.

<i>Fail to complete or submit dishonest or invalid self and peer assessments via SPARK^{PLUS}</i>	<i>Fail to participate in feedback sessions</i>
Penalty 10% of the available project component mark.	Penalty 10% of the available project component mark.

Please note to receive credit for this assessment you must demonstrate that you have met the learning outcomes (satisfied the assessment task). This means any person who submits dishonest or invalid assessments e.g. rating above average for every team member on any given criterion, will be regarded as not having satisfactorily completed the assessment (and hence receive no marks for the self and peer assessment exercise).

The activities are being designed to develop your critical evaluation, feedback and group work skills. These are important graduate attributes and indeed attributes required by most professional associations to obtain certification. Submitting invalid assessments not only undermines this process but deprives you of the opportunity to develop and practice these skills.

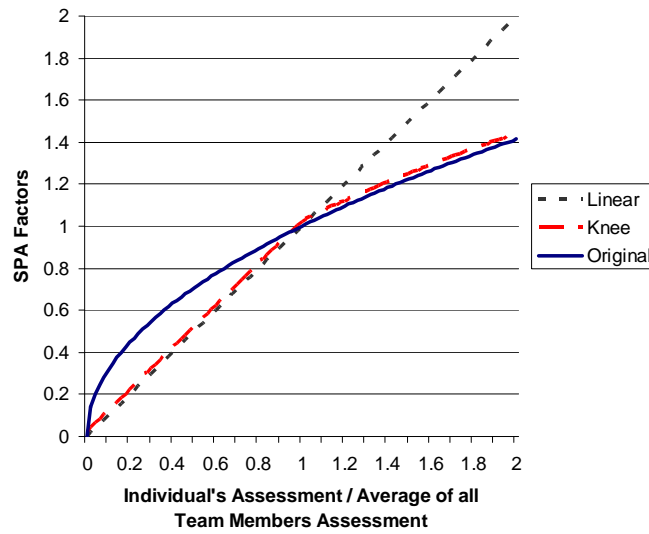
Objections

Initially the released SPA and SAPA factors will be preliminary, only becoming official after any objections are considered. Any student believing their SPARK^{PLUS} assessments are unfair may lodge an objection. Any objection to your self and peer assessment ratings must be made in writing. Each objection must be no more than 400 words (12 point Times New Roman) clearly outlining why you believe your rating is unfair. Your objections will be discussed with the other members of your group. Objections must be lodged within 3 days from the date that the SPARK^{PLUS} assessments are released.

An objection usually indicates that at least one member of a group has not achieved the teamwork learning objectives. Marks are only awarded for successfully achieving learning outcomes. The lodgement of an objection will be considered as a request for reassessment of the entire group. Hence, if a student lodges an objection the marks for the entire group will be reassessed and released after the objection has been considered. In considering any objection the log books, meeting minutes for a group and or other appropriate evidence will be reviewed.

If the objection is found to be warranted any students considered to have provided unfair assessments will be excluded from the group's self and peer assessment calculation or alternatively the group's SPA factors will be altered at the discretion of the subject coordinator.

Which SPA Formula Should I Choose



*Relationship between SPA factor calculation methods
(Note: the Knee plot has been slightly offset to increase readability).*

SPARK^{PLUS} allows the use of different formulas to accommodate the design of assessment tasks with different objectives. For example the above figure shows the relationship between the three formulas known as Original, Knee and Linear to calculate the SPA factor.

Original

$$\text{SPA Factor} = \sqrt{\frac{\text{Total ratings for individual team member}}{\text{Average of total ratings for all team members}}}$$

Knee

$$\text{SPA Factor if } \leq 1 = \sqrt{\frac{\text{Total ratings for individual team member}}{\text{Average of total ratings for all team members}}}$$

$$\text{SPA Factor if } \geq 1 = \frac{\text{Total ratings for individual team member}}{\text{Average of total ratings for all team members}}$$

Linear

$$\text{SPA Factor} = \frac{\text{Total ratings for individual team member}}{\text{Average of total ratings for all team members}}$$

While the selection of the most appropriate SPA formula will depend on the design of the assessment task and your desired learning outcomes, many users report the knee formula provided them with the most desirable option, combining the best features of the original and linear calculation methods. The knee formula also helps promote teamwork and fair division of the assessment task between team members by not rewarding students who might be tempted to take more than their fair share of work.

By way of explanation consider the following example. The table below shows the SPA factors for a team of four students for two scenarios:

- Student A contributes only half the work of their team peers.

and

- Student A contributes twice as much work as their team peers.

The knee formula does not overly reward students who might be tempted to take on most of the work (the table shows a student who did twice as much work as their peers would only get a SPA factor of 1.26) while providing incentive for those who are tempted to underperform (the table shows a student who only did half the work of their peers would get a SPA factor of 0.57).

SPA factors using different formulae for groups with one over or under performing team member.

Assessor	Rating Student A	Rating Student B	Rating Student C	Rating Student D	SPA Original	SPA Knee	SPA Linear
Student A Contribution Half that of other Team Peer's							
Student A	1	1	1	1	0.76	0.57	0.57
Student B, C & D	2	2	2	2	1.07	1.07	1.14
Student A Contribution Twice that of other Team Peer's							
Student A	2	2	2	2	1.26	1.26	1.60
Student B, C & D	1	1	1	1	0.89	0.80	0.80

Students have also reported that they liked the knee formula as it provided a fairer distribution of marks and sent a stronger feedback message to underperforming students than with the factors calculated using the original formula. Some students had previously expressed concern that, using the original formula, underperforming students received an inflated mark that they were satisfied with, and hence were not motivated to improve their performance for the remaining parts of a project (Willey & Freeman, 2006). For example, the table shows using the original formula a student who only did half as much work as their team peers would get an SPA factor of 0.76 and hence receive 76% of the group mark. Using the knee formula this student's mark would be reduced to 57% of the group mark, a figure that more closely reflects their true contribution.

SAPA: Self Assessment to Peer Assessment Factor

The SAPA factor is the ratio of a student's own self assessment rating compared to the average rating of their contribution by their peers.

$$\text{SAPA Factor} = \sqrt{\frac{\text{Self ratings for individual team member}}{\text{Average of ratings for individual by peer team members}}}$$

The SAPA factor provides students with feedback about how the rest of the group perceives their contribution. For example, a SAPA factor greater than 1 means that a student has rated their own performance higher than they were rated on average by their peers. Conversely, a SAPA factor less than 1 means that a student has rated their own performance lower than they were rated on average by their peers.

Typically, SAPA factors between 0.95 and 1.05 (your assessment is within approximately 10% of your peers) reflect that your assessment of your contribution is roughly in agreement with the average assessment of your contribution by your team.

SAPA factors above 1.1 reflect that you believe you contributed more (> 120%) to the team activity than on average your team peers believe you contributed. Conversely, SAPA factors below 0.9 reflect that your team on average believes you contributed more (< 80%) to the team activity than you believe you did.

The following table shows the relationship between different SAPA factors and the difference between a student's perception of their contribution compared to the average perception of their contribution by their team peers.

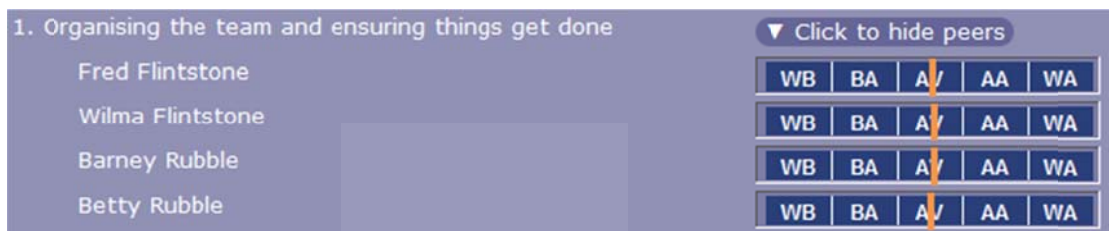
SAPA Factor	0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5
Percentage of your self rating to average peer rating of your contribution	25%	36%	49%	64%	81%	100%	121%	144%	169%	196%	225%

Understanding: Self Assessment to Peer Assessment (SAPA) Factor

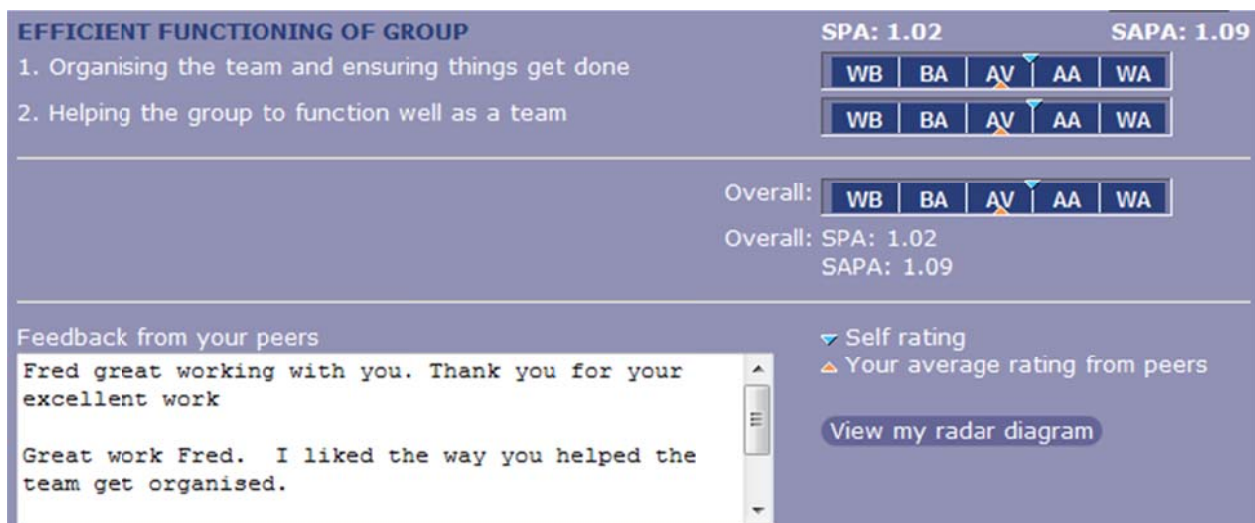
The SPARK^{PLUS} sliders represent a continuous scale from 0 to 100. If you are using a norm based assessment scale, for example well below average to well above average, then the average bar exists between 40 and 60. Hence, the middle of the average bar has a numerical value of 50. If a student has a SAPA of 1.09 this is equivalent to the student rating themselves at the top end of the average bar while the average of their peers rated them in the middle of the average bar (see below).



Fred rated himself on the top of the average bar while rating all his peers in the middle.



Wilma Barney and Betty rated everybody the same in the middle of the average bar.



Fred's Results.

Fred's results shown above reflect this situation. The blue triangle on both sliders shows that he rated himself higher than the average rating he received from his team peers. His SAPA factor is 1.09 and his SPA factor is 1.02 (reflecting the slightly higher self rating of his own contribution compared to that of his team peers).

To exclude or not to exclude

Depending on the activity and rating scale used I usually look at the ratings submitted by students with a SAPA factor greater than 1.1 to determine whether they should be excluded. In the above case, Fred's over rating of his own contribution compared to his peers will make almost negligible difference to the SPA factors received by each group member. Fred's SPA factor of 1.02 is only 0.03 higher than that received by his peers. When the SPA factors are used to convert the group mark into an individual mark there will be little difference in the mark received by each member of the team.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
Betty	Rubble	12345681	Bedrock	Yes	0.99	0.99	<input type="checkbox"/>	No
Wilma	Flintstone	12345680	Bedrock	Yes	0.99	1	<input type="checkbox"/>	No
Barney	Rubble	12345679	Bedrock	Yes	0.99	1	<input type="checkbox"/>	No
Joe	Flintstone	12345678	Bedrock	Yes	1.02	1.09	<input type="checkbox"/>	No

Results for team Bedrock.

However, while Fred's over rating of his own contribution compared to his peers will make little difference to the mark received by each group member, it is common for students to be concerned that the above results give the impression that Fred did the most work. Furthermore, Fred's relatively high SAPA factor tells his team members that he rated his contribution higher than they did.

Let us assume a student objected to their ratings and a subsequent review determined that Fred had overrated himself, his ratings can be easily excluded from the group's factor calculations.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
Betty	Rubble	12345681	Bedrock	Yes	1	1	<input type="checkbox"/>	No
Wilma	Flintstone	12345680	Bedrock	Yes	1	1	<input type="checkbox"/>	No
Barney	Rubble	12345679	Bedrock	Yes	1	1	<input type="checkbox"/>	No
Joe	Flintstone	12345678	Bedrock	Yes	1	1.09	<input checked="" type="checkbox"/>	Yes

Results for team Bedrock after excluding Fred's ratings.

The figure above shows that after excluding Fred all group members receive an SPA factor of 1. However, Fred's SAPA factor remains at 1.09 to provide him with feedback about the differences between his and his peers perception of his contribution as shown in the figure below.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

SPA: 1 SAPA: 1.09

WB BA AV AA WA

WB BA AV AA WA

Overall:

WB BA AV AA WA

Overall: SPA: 1
SAPA: 1.09

Feedback from your peers

Fred great working with you. Thank you for your excellent work

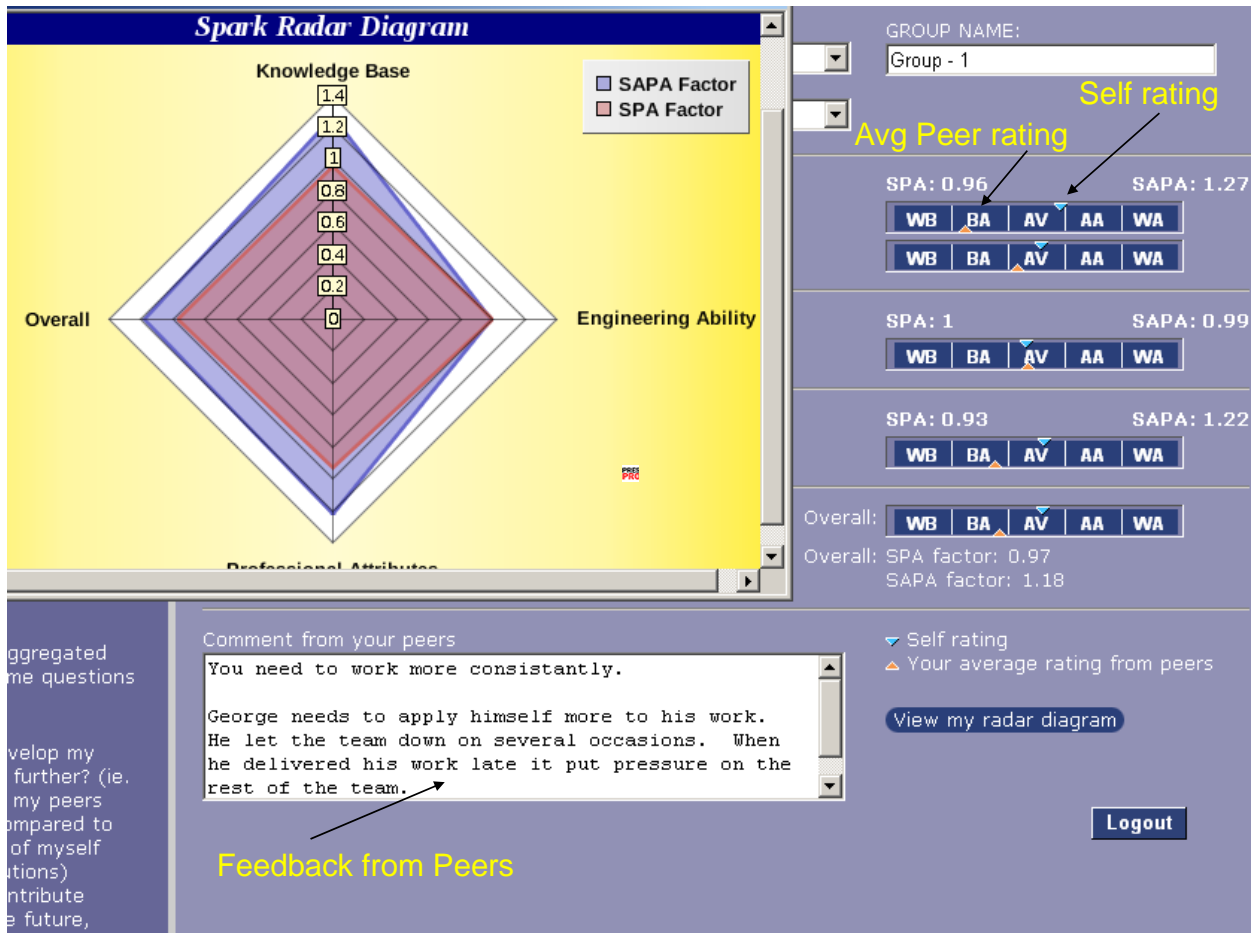
Great work Fred. I liked the way you helped the team get organised.

Self rating
Your average rating from peers

View my radar diagram

Fred's results after excluding his ratings.

HOW TO INTERPRET INDIVIDUAL RADAR DIAGRAMS



The blue envelope in the radar diagrams represents the SAPA factors. When this envelope exceeds 1 this indicates that students believe their contribution was higher than the average rating they received from their team peers. The red envelope represents the SPA factors. When this envelope exceeds 1 it indicates the perception that students have contributed more than the average of their team peers.

The radar diagram shown above has broken a student's performance down into three attribute categories. A quick look at the diagram shows that in the Engineering Ability category the student contributed the same as the average contribution of their team and the student's rating of their own performance agrees with the average rating they received from their team peers.

Conversely in the Knowledge Base and Professional Skills categories the student performed slightly below the average contribution of their team and the SAPA envelope shows they rated their own performance much higher than they were rated by their team peers.

The differences between a student's assessment of their contribution compared to their peers' assessment may be due to a number of factors including:

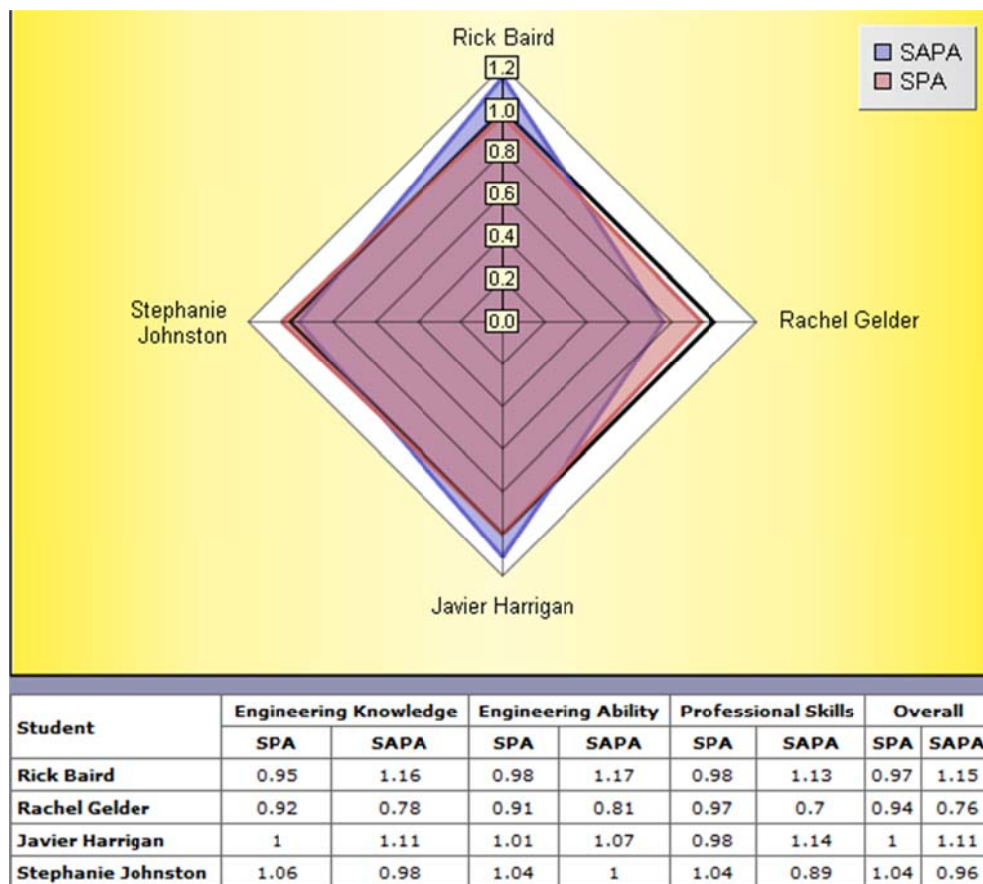
- Their contribution has not been fairly assessed by their peers.
- Their peers have not provided feedback to the student in regard to their performance and hence they are unaware of the differences between their self and their team peers' perceptions.
- The student may be aware of their true performance level but deliberately chose to inflate their ratings in an attempt to increase their overall mark.

HOW TO RUN FEEDBACK SESSIONS

If your reason for using SPARK^{PLUS} is to develop professional skills such as teamwork, improving students' judgement or their ability to both give and receive feedback then to get the best results we suggest you include some form of facilitated feedback session. We have found it best to conduct these sessions in class. For large classes we recommend conducting these sessions in tutorials where the class size is typically smaller. The following is an example of how feedback sessions are conducted in one of our large classes.

Students have previously used SPARK^{PLUS} to rate their own and their team peers' contribution to a stage of a team project.

In the next tutorial group radar diagrams and a table of categorised factors (as shown below) are printed and distributed to all group members and discussed (hence all team members see each other's results. It is important to inform students of this fact in your subject guide before the activity commences). We have found that both sharing SPARK^{PLUS} factors with all team members and having teams discuss the results has significantly improved academic honesty (students providing fair and honest assessment).



Group radar diagrams

Groups are subsequently guided through a feedback process as outlined below:

1. The process begins with students sharing positive feedback with their peers. Students are asked to focus on what their peers did well (their strengths in regard to the project) and what they learnt from their peers (knowledge and teamwork skills).
2. This is followed by a process of self evaluation where students share with their group what they have learnt or discovered about their strengths, weaknesses or performance from the exercise. Students are encouraged to identify how they could improve their own performance and in what way they would approach the task differently if they had to do it again (this step

allows students to acknowledge what they have not done well before this is pointed out by their peers)

3. Students then provide constructive criticism to their team peers by:
 - suggesting how they may have approached their tasks differently to achieve a better group result
 - suggesting how aspects of their behaviour affected the team and the benefits of changing that behaviour
 - reflecting on how team peers could have learnt more from the process.
4. The in-class discussion concludes by teams agreeing how to improve their overall team and individual performance for the remaining parts of the project and /or in future group work opportunities.

During the feedback session the lecturer/tutor should move between groups asking questions to prompt discussions between team members. For example, the above group radar diagram shows Rick and Lavier rated their own contribution higher than their peers (on average) rated their contribution. While both appear to have contributed reasonably to the project (SPA factors close to 1) we would ask them to reflect on these results and suggest why this discrepancy occurred. Similarly, Rachel has not only underrated her performance (low SAPA factor) but also contributed the least to the project (lowest SPA factor). We would ask Rachel to reflect on her results. For example was she feeling guilty or just being modest and how she intends to improve her performance for the remaining stages of the project and in future group work opportunities.

Recommendations

1. Hand out the group radar diagrams and conduct the feedback sessions before students receive their mark/grade for that stage of the project. If you hand out the grades first students are often distracted and fail to benefit from the feedback sessions. Remember these feedback sessions are designed to help students build their professional skills including teamwork, critical evaluation and the ability to both give and receive feedback.
2. After the feedback sessions hand back to students feedback on their project stage submission. Only after you have discussed the feedback with each team should you provide their grades. In our experience if you have provided quality feedback with which students have engaged then they will be able to accurately predict their grade before you even hand it out. If you hand out the grades first, students are less likely to focus on the feedback they receive but rather start comparing their grades to other groups to decide whether their grade was fair and if not how they can argue for additional marks.
3. Design group projects to have multiple stages to enable students to receive feedback and act on it within the subject. For example, we use SPARK^{PLUS} at least twice in a group project to assess individual's contribution. For example, the first deliverable may be worth 10 to 15 marks and the second 25 to 30 marks. This not only provides an opportunity for students to act on the feedback they received to improve their performance in later stages of the subject, but by allocating a higher weight (more marks) to later stages of the projects provide incentive to students to respond to this feedback to improve their grade.
4. We recommend that the final project deliverables are due in the second last week of semester. This allows the feedback activities to be held in the last teaching week. As previously mentioned we have found that sharing SPARK^{PLUS} factors with all team members and having teams discuss the results promotes academic honesty (students providing fair and honest assessment). We have found that some students knowing they will not be seeing each other that semester and hence will not be accountable to the group for their ratings, tend to over rate their performance in an effort to improve their grade.

FREE RIDERS, OVER RATERS, SABOTEURS AND NON-CONTRIBUTORS

Free riders

Free riders are students who do not contribute their fair share to team projects. Free riders who honestly rate their contribution typically have an SPA (performance) factor less than 1 and a SAPA (feedback) factor close to or equal to 1. Hence after using the SPA factor to produce individual marks SPARK^{PLUS} ensures free riders are not rewarded for their poor contribution.

All of Fred's team knows he didn't contribute as much as his peers and all team members including Fred rate his performance below average and the other team members slightly above average as shown below. As a result Fred receives a relatively low 0.58 for his SPA (performance) factor ensuring he receives a mark that reflects his poor contribution. Fred's peers receive a SPA factor of 1.07 recognizing their above average contribution to the team task. Note all team members submitted honest assessments reflected by the fact that their SAPA factors are very close to 1 (see group results below).

EFFICIENT FUNCTIONING OF GROUP
 1. Organising the team and ensuring things get done
 Wilma Flintstone
 Fred Flintstone
 Betty Rubble
 Barney Rubble

▼ Click to hide peers

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Fred's ratings: All of Fred's team knows he didn't contribute as much as his peers and all team members including Fred rate his performance below average and the other team members slightly above average.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
Wilma	Flintstone	12345680	Bedrock	Yes	1.07	1	<input type="checkbox"/>	No
Fred	Flintstone	12345678	Bedrock	Yes	0.58	1.01	<input type="checkbox"/>	No
Betty	Rubble	12345681	Bedrock	Yes	1.07	0.99	<input type="checkbox"/>	No
Barney	Rubble	12345679	Bedrock	Yes	1.07	0.99	<input type="checkbox"/>	No

Group Results: Fred receives a relatively low 0.58 for his SPA factor ensuring he receives a mark that reflects his poor contribution. Fred's peers receive a SPA factor of 1.07 recognizing their above average contribution to the team task. Note all team members submitted honest assessments which is reflected by their SAPA factors being very close to 1.

Fred's results screen provides him with feedback on his performance. The position of the blue (self rating) and orange (average peer rating) triangles show that both Fred and his peers rated his performance as below average. The SAPA factor of 1.01 confirms Fred's rating of his performance agrees with his peers' rating of his performance. The written feedback provides the reasons for Fred's low ratings (see next page).

Hence, when students provide honest assessments the moderation provided by the SPARK^{PLUS} SPA (performance) factor ensures that free riding students do not receive marks they don't deserve. The fact that a free rider, in this case Fred's, SAPA (feedback) factor is close to 1 indicates that he was honest in assessing his own contribution. When a free riding student over rates their own contribution in an attempt to boost their mark, their SAPA (feedback) factor will be much greater than one. Students who use this strategy are known as Saboteurs. See the section entitled Saboteurs to learn how to both recognise and exclude these students.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

SPA: 0.58 SAPA: 1.01

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Overall:

WB	BA	AV	AA	WA
----	----	----	----	----

Overall: SPA: 0.58
SAPA: 1.01

Feedback from your peers

Fred the quality of your work was often poor and you failed to turn up to meetings on time

Fred you were late delivering several parts of the project. This put a lot of pressure on the team. Your work was typically incomplete.

Self rating

Your average rating from peers

View my radar diagram

Fred's results screen

Over raters

Team contribution ratings are comparative evaluations (Norm-referenced assessment) between a student and their group peers. That is, students are rating their and their peers' performance relative to each other. For example if all team members have contributed the same on any particular criterion, then all team members should be rated average for this criterion, even if this achievement is high. Similarly, if no team member made a contribution on a particular criterion, then the average team contribution is zero and all team members would be rating as average. That is, each team member's contribution on this criterion was the average for the team. This is an extreme example, normally at least one team member will have contributed more than their peers in respect to a particular criterion and hence would be rated above average. If the other team members contributed about the same they may be rated in the lower portion of the average range. Hence the idea is that the average of the individual ratings given by each team member on any criterion should be approximately average (see rating screen below). Hence, it is not possible for all team members to have above average relative performance on any given criterion.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

Peer	WB	BA	AV	AA	WA
Wilma Flintstone					
Fred Flintstone					
Barney Rubble					
Betty Rubble					

▼ Click to hide peers

Rating Screen: For Norm-based assessment the average peer rating on any criterion should be approximately average.

Over raters are students who over rate their and their team peers' contribution to a project. Hence, the average assessment of a student regarded as an over rater is above average. This most often occurs when either:

- A student who is a member of a high performing team cannot bring themselves to rate everyone's contribution as average (even though average performance for their team was at a high level) instead rating each team member's contribution as for example well above average (see rating screen below).

or:

- Students misunderstand SPARK^{PLUS} and incorrectly believe that by rating all members of their team, for example, well above average (see rating screen below) they will receive a better mark.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

Peer	WB	BA	AV	AA	WA
Wilma Flintstone					
Fred Flintstone					
Betty Rubble					
Barney Rubble					

▼ Click to hide peers

Over rater's rating screen: Fred rated everyone's contribution as well above average

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

Wilma Flintstone
Fred Flintstone
Betty Rubble
Barney Rubble

▼ Click to hide peers

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Rating screen of over rater's peers: Fred's peers rate everyone's contribution as average.

Impact of over raters on SPARK^{PLUS} Factors

The SPARK^{PLUS} sliders represent a continuous scale from 0 to 100. If you are using the predefined norm based assessment scale, for example well below average to well above average, then the average bar exists between 40 and 60. Hence, the middle of the average bar has a numerical value of 50. Over raters typically provide fair comparative assessments. That is, the relative ratings they provide themselves and their peers are honest but the average of the individual ratings they gave each team member are high, typically greater than 65 (in or above the Above Average Range).

While over raters have little impact on each team members SPA (performance) factor (referring to team results below, all the team receive SPA (performance) factors of 1 and hence all receive the same grade), they do distort the SAPA (feedback) factors. The over rater typically receives a high SAPA (greater than 1) while their team peers receive low SAPA factors (less than 1). The team results shown below indicate that Fred, who is a classic over-rater (see his rating screen on the previous page), has a SAPA factor of 1.34 while his team peers have SAPA factors of approximately 0.8. The orange bar in Fred's results screen (shown below) provides him with the feedback that he is an over rater.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
✓ Wilma	Flintstone	12345680	Bedrock	Yes	1	0.81	<input type="checkbox"/>	No
✓ Fred	Flintstone	12345678	Bedrock	Yes	1	1.34	<input type="checkbox"/>	No
✓ Barney	Rubble	12345679	Bedrock	Yes	1	0.8	<input type="checkbox"/>	No
✓ Betty	Rubble	12345681	Bedrock	Yes	1	0.79	<input type="checkbox"/>	No

SPARK^{PLUS} factors for team Bedrock in which Fred was an over rater.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

2. Helping the group to function well as a team

SPA: 1 SAPA: 1.34

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Overall:

WB	BA	AV	AA	WA
----	----	----	----	----

Overall: SPA: 1
SAPA: 1.34

Feedback from your peers

Great work Fred. It was a pleasure working with you. Your commitment to the team was most appreciated.

Fred thank you for your work and commitment to the team. I appreciate the feedback you gave me

Self rating

The average rating you gave to you and your peers

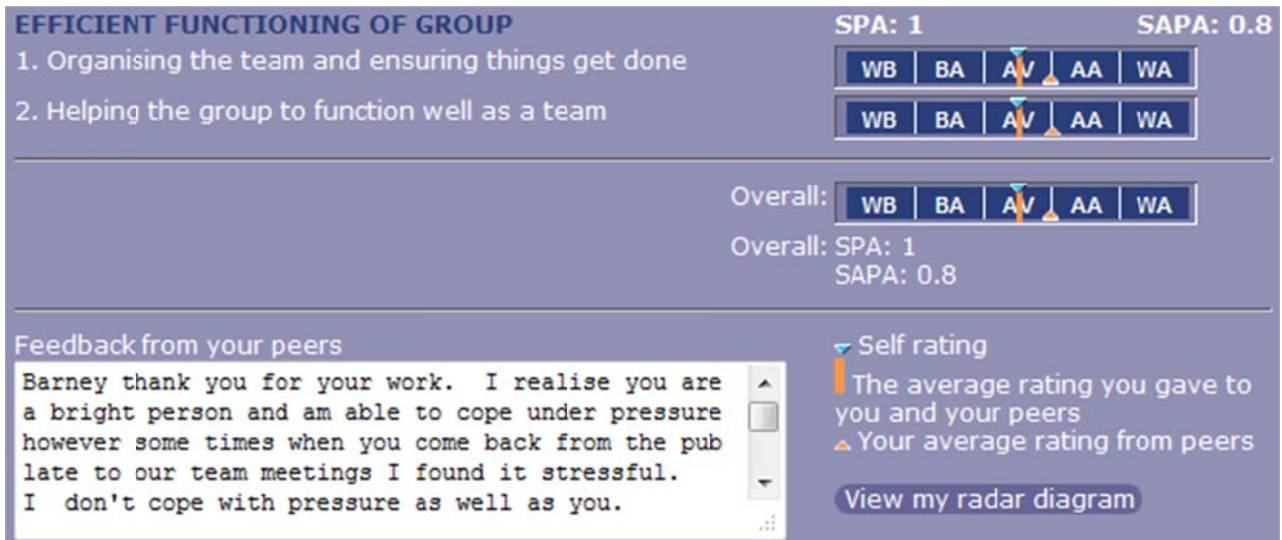
▲ Your average rating from peers

View my radar diagram

Fred's SPARK^{PLUS} results screen (note the orange bar shows Fred he is an over rater).

Excluding over raters

Fred's team peers could incorrectly assume that they have significantly underrated their contribution ($SAPA < 1$) and that their peers consider that they contributed a lot more. This fact is confirmed in Barney's results screen shown below, where the orange (lower) triangle tells Barney (one of Fred's peers) that his team thinks his contribution was above average. This distortion is caused by Fred's over rating. It can be easily rectified by excluding Fred's ratings from the factor calculation (shown in the exclusion screen below).



Barney's results screen

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
Wilma	Flintstone	12345680	Bedrock	Yes	1	1.01	<input type="checkbox"/>	No
Fred	Flintstone	12345678	Bedrock	Yes	1	1.34	<input checked="" type="checkbox"/>	Yes
Barney	Rubble	12345679	Bedrock	Yes	1	1.01	<input type="checkbox"/>	No
Betty	Rubble	12345681	Bedrock	Yes	1	1	<input type="checkbox"/>	No

Exclusion screen: Group factors after excluding Fred's ratings from the calculation

Referring to the figure above, after excluding Fred, Fred's peers all now have SAPA factors of approximately 1, while Fred's SAPA factor remained unchanged at 1.34 informing him of his over rating.

Barney's results screen after Fred's exclusion is shown over the page. The orange (bottom) triangles have now moved to be average and hence Barney can see that his judgement of his own contribution agrees with the perception of his contribution by his peers.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

SPA: 1 SAPA: 1.01

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Overall:

WB	BA	AV	AA	WA
----	----	----	----	----

Overall: SPA: 1
SAPA: 1.01

Feedback from your peers

Barney thank you for your work. I realise you are a bright person and am able to cope under pressure however some times when you come back from the pub late to our team meetings I found it stressful. I don't cope with pressure as well as you.

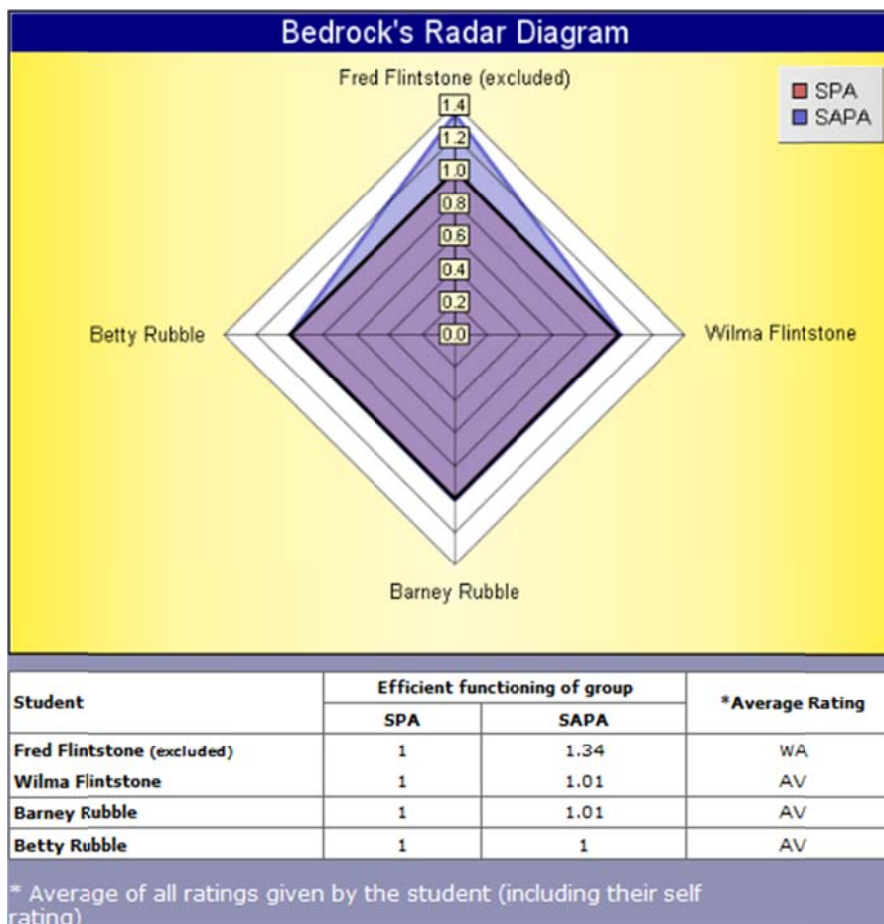
Self rating
 The average rating you gave to you and your peers
 Your average rating from peers

[View my radar diagram](#)

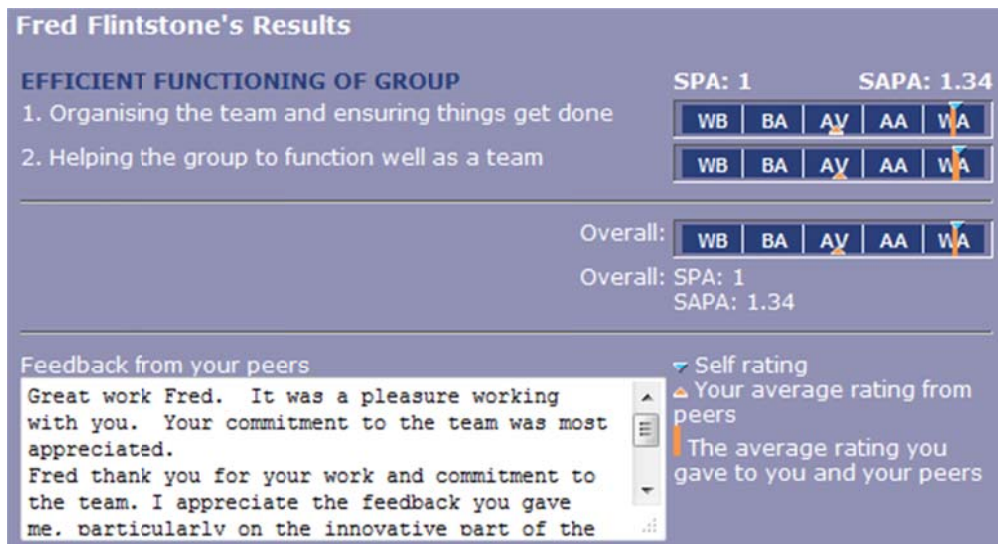
Barney's results screen – Fred's ratings excluded.

Hence an over rater is most often identified when they have a high SAPA factor (greater than one) while the rest of their peers have low SAPA factors (less than one), In addition all team members will have SPA factors close to 1.

A good way of discouraging over raters is to print the average rating given by students in the table published with the group radar diagram (see below) and in the student results screen (see next page).



Group radar diagram: Fred's overrating is evident to all team members as his average rating on all criteria is in the WA (Well Above Average) range. In comparison, his peers' average ratings are all in the AV (Average) range.



Over rater's results screen: The orange bar shows Fred's average rating on each criterion was in the well above average range.

Saboteurs

Saboteurs are students who deliberately provide dishonest assessments. There is no one method for detecting saboteurs (as it varies depending on the type of assessment task, the formula chosen by the instructor (original, knee or linear) etc).

Saboteurs can usually be categorised as one of the following:

- Students who do not contribute their fair share to the project but rate themselves high and their team peers low in an attempt to improve their mark or hide their poor contribution. Saboteurs in this category typically have an SPA (performance) factor less than 0.85 and a SAPA (feedback) factor greater than 1.5.
- Students who contribute their fair share to the project but over rate their own performance relative to their team peers. Saboteurs in this category may have an SPA (performance) factor close to and in some cases higher than 1 and a SAPA (feedback) factor greater than 1.1.
- Students who have a problem with or do not like a particular team member, or team members, and rate them unfairly low. Saboteurs in this category are harder to identify. Most often their SPA (performance) factor is less than 1 and their SAPA (feedback) factor is greater than 1, while the peers they have rated unfairly have SPA factors close to one and SAPA factors greater than 1. Saboteurs that fit this category are most easily identified by looking at the average ratings provided by students (available in the results screen) to identify inconsistencies in how students were rated by the peers. If you suspect a student of being a saboteur the next step is to exclude them from the factor calculation and observe how the group's factors change.

A high SAPA factor does not necessarily mean that a student has deliberately overrated their own performance. For example:

- they may be a student who rated everybody high (see section on over raters)

or

- they may be a student who has not been informed by their team peers that their performance was not satisfactory and hence they honestly believe their contribution was the same as their peers.

When identifying saboteurs remember you are looking for a student who has overrated their own performance relative to their team peers.

Once you have sufficient experience we recommend you automatically exclude suspected saboteurs (once excluded their ratings will not be used in the calculation of any marks or factors (SPA, SAPA) and allow them the right to appeal your decision (see section on Objections).

Understanding Saboteurs

The following example is provided to help you both identify saboteurs and understand the effect of excluding them.

All of Fred's team peers know he didn't contribute as much as they did and subsequently rate his performance below average and each other slightly above average as shown in the rating screen below. Fred knows he didn't contribute much but over rates his contribution and underrates his team peers contribution in an effort to improve his mark (see Fred's rating screen below). This is the behaviour of a saboteur.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

Wilma Flintstone

Fred Flintstone

Betty Rubble

Barney Rubble

▼ Click to hide peers

WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Rating screen of one of Fred's peers: Fred rated below average

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done

Wilma Flintstone

Fred Flintstone

Betty Rubble

Barney Rubble

▼ Click to hide peers

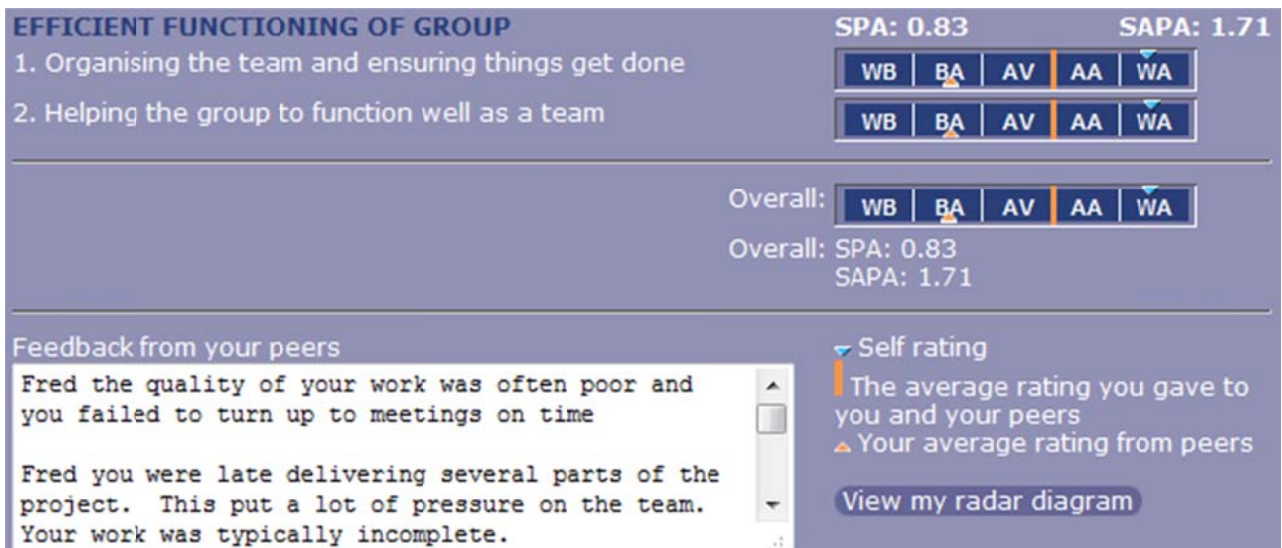
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA
WB	BA	AV	AA	WA

Fred's saboteur rating screen: Fred rated himself Well Above Average while rating all his peers in the middle of Average

Fred receives 0.83 for his SPA (performance) factor and a extremely high 1.71 SAPA (feedback factor). Fred's peers all receive SPA factors of 1.03 recognising their above average contribution to the team task. However, Fred's peers also receive SAPA (feedback) factors greater than one (see results below). This distortion occurs as a result of Fred underrating of their contribution. Fred's results screen for this situation is shown over the page.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
✓ Betty	Rubble	12345681	Bedrock	Yes	1.03	1.02	<input type="checkbox"/>	No
✓ Wilma	Flintstone	12345680	Bedrock	Yes	1.03	1.03	<input type="checkbox"/>	No
✓ Barney	Rubble	12345679	Bedrock	Yes	1.03	1.02	<input type="checkbox"/>	No
✓ Fred	Flintstone	12345678	Bedrock	Yes	0.83	1.71	<input type="checkbox"/>	No

SPARK^{PLUS} factors for team Bedrock with Fred as saboteur.



Fred's results screen: While the mean of the ratings Fred provided were around average (orange bar), Fred's rating of his contribution Well Above Average (WA) (upper blue triangle) was much higher than his peers Below Average (BA) rating of his contribution (lower orange triangle).

Fred's 0.83 for his SPA (performance) factor has been inflated by his over rating of his own contribution. Furthermore, his peers' SAPA factors (self-assessment / peer assessment) of 1.03 suggest that they have slightly over rated their contributions. However, it is Fred's dishonest low ratings for his peers that has unfairly reduced the denominator (peer assessment) and increased their SAPA factors. This distortion can be easily rectified by excluding Fred's ratings from the factor calculation (see below).

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)	Excluded From Calculation
Betty	Rubble	12345681	Bedrock	Yes	1.07	0.99	<input type="checkbox"/>	No
Wilma	Flintstone	12345680	Bedrock	Yes	1.07	1	<input type="checkbox"/>	No
Barney	Rubble	12345679	Bedrock	Yes	1.07	1	<input type="checkbox"/>	No
Fred	Flintstone	12345678	Bedrock	Yes	0.58	1.71	<input checked="" type="checkbox"/>	Yes

Saboteur exclusion screen.

As a result of his exclusion Fred's SPA (performance) factor is reduced to 0.58. It had previously been inflated by his overrating of his own contribution. Similarly, his team peers' SPA factors have increased to 1.07 recognising their greater contribution to the project. In addition, Fred's peers' SAPA (feedback) factors are now approximately 1 indicating that they have correctly assessed their contribution to the project – see Barney's results screen and group radar diagram over the page.

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

SPA: 1.07 SAPA: 1

WB BA A AA WA

WB BA A AA WA

Overall: WB BA A AA WA

Overall: SPA: 1.07
SAPA: 1

Feedback from your peers

Thanks for your effort Barney. I appreciate your work in putting the final report together and the ideas you provided to improve our project.

Excellent work Barney it has been a pleasure working with you thank you for all you effort

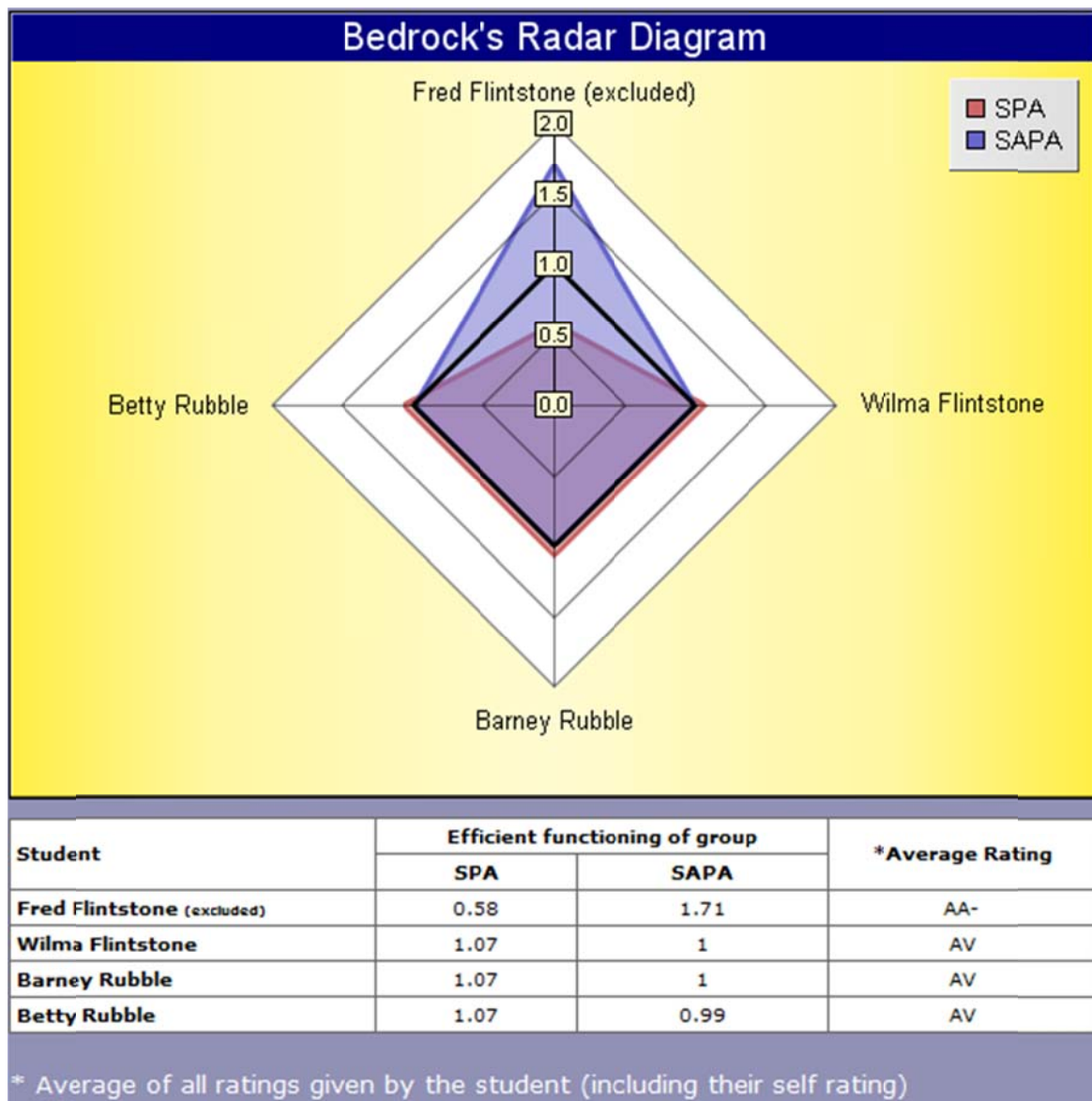
Self rating

The average rating you gave to you and your peers

Your average rating from peers

[View my radar diagram](#)

Results screen for Barney (one of Fred's peers) after Fred's exclusion as saboteur.



Group radar diagram for team Bedrock after Fred's exclusion. Notice the SPA red locus shows Fred's underperformance while the blue SAPA locus shows that he rated his contribution much higher than his contribution was rated by his team peers. Note the diagram also reports Fred has been excluded from the calculations.

Non-Contributors

Non-contributors are students who make no or an extremely small contribution to the group project. For example, for personal reasons a student may withdraw from a subject halfway through the semester, or a student may decide that they are not going to pass the subject and as a result will not participate in any more of the subject activities. This might not seem like a problem except that if the non-contributing student stays enrolled in a team then his team peers will benefit from their non-contribution. Usually non-contributors do not submit their ratings. They are most easily identified by having very low (<0.4) SPA factors and all of their peers having high (> 1.1) SPA factors.

If the team was informed that the non-contributor was not going to participate in the group task and hence planned their work accordingly, they should not receive the bonus of a high SPA factor.

Non-Contributor Example

Fred contributes to the activity assessed by the first self and peer assessment exercise. Then due to personal reasons, he withdraws from the subject early in the second activity. The group allocates their work knowing that Fred will not be contributing and completes the task. Having decided to leave the subject Fred does not enter his self and peer assessments. When Fred's peers enter their self and peer assessments they rate Fred's contribution as Well Below Average (WB) and each other as Above Average (AA) as shown below.

1. Organising the team and ensuring things get done

Fred Flintstone: WB, BA, AV, AA, WA

Wilma Flintstone: WB, BA, AV, AA, WA

Betty Rubble: WB, BA, AV, AA, WA

Barney Rubble: WB, BA, AV, AA, WA

2. Helping the group to function well as a team

Fred Flintstone: WB, BA, AV, AA, WA

Wilma Flintstone: WB, BA, AV, AA, WA

Betty Rubble: WB, BA, AV, AA, WA

Barney Rubble: WB, BA, AV, AA, WA

Rating screen for group with non-contributor: Fred's peers rate his contribution as Well Below Average (WB) and each other as Above Average (AA)

When the results are published Fred receives a performance (SPA) factor of 0.2 while his peers each receive a performance (SPA) factor of 1.13 as shown in the screens below.

First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)
✓ Fred	Flintstone	12345678	Bedrock - 1	No	0.2	-	-
✓ Wilma	Flintstone	12345680	Bedrock - 1	Yes	1.13	1	<input type="checkbox"/> No
✓ Barney	Rubble	12345679	Bedrock - 1	Yes	1.13	1	<input type="checkbox"/> No
✓ Betty	Rubble	12345681	Bedrock - 1	Yes	1.12	1	<input type="checkbox"/> No

Group results with non-contributor: Fred receives a performance (SPA) factor of 0.2 while his peers each receive a performance (SPA) factor of 1.13.



Student results screen with non-contributor: Fred's peers results screen showing a performance (SPA) factor of 1.13 and feedback (SAPA) factor of 1.

Let us assume for example that Fred's group received a 74% CREDIT for their project. Fred's peers' individual mark would be calculated by multiplying their group project mark by their performance (SPA) factor.

$$\begin{aligned} \text{Fred's Peers' individual mark} &= 74 \times 1.13 \\ &= 84 \text{ (after rounding up)} \end{aligned}$$

Hence, each of Fred's peers would now receive an 84 DISTINCTION - an increase of 10 marks. Given that there are other groups in the class that only have three team members, it would be unfair for Fred's team to benefit when they knew Fred was dropping the subject.

Removing Non-contributors

Note: this information refers to SPARK^{PLUS} version1. In Version 2 has a more convenient way for excluding Non-contributors.

To remove Fred from the team post assessment do the following:

1. Select the **Setup** screen
2. Use **Modify Task** to open the rating period (change the end date to after the current time)
3. Select **Manage Groups**
4. Choose Fred's team (Bedrock in the figure below)
5. Delete Fred from the team
6. Close the rating period (change the end date back to the original closing date)

101 - Test Subject, 2011, Autumn

List of groups in task **Contribution to Group Project 6** Download

Rating ends: Rating period not set

Delete (All None)	Group Name	Size	Extension ①		
<input type="checkbox"/>	Bedrock - 1	4	Manage Group	-	Extend Rating Period
<input type="checkbox"/>	group 2 - 2	0	Manage Group	-	Extend Rating Period
<input type="checkbox"/>	group 3 - 3	0	Manage Group	-	Extend Rating Period

Submit

*Select **Manage Group** for Fred's team Bedrock.*

Group Members	Account ID	Name	Email	Status	Delete (All None)	
					All	None
	12345678	Fred Flintstone	-	Confirmed	<input checked="" type="checkbox"/>	
	12345680	Wilma Flintstone	-	Confirmed	<input type="checkbox"/>	
	12345679	Barney Rubble	-	Confirmed	<input type="checkbox"/>	
	12345681	Betty Rubble	-	Confirmed	<input type="checkbox"/>	
Group Contact	No group member has been set to be the group contact					

Select Fred and click on Submit to delete him from the group.

After Fred has been removed from the group each of Fred's peers now have a performance (SPA) factor of 1 and hence will all receive 74% CREDIT for the team activity – see screens below.

Select a group to view: Bedrock - 1							
First Name	Last Name	ID	Team Name	Rating Submitted	Total SPA	Total SAPA	Instructor Excluded (All None)
✓ Wilma	Flintstone	12345680	Bedrock - 1	Yes	1	1	<input type="checkbox"/> No
✓ Barney	Rubble	12345679	Bedrock - 1	Yes	1	1	<input type="checkbox"/> No
✓ Betty	Rubble	12345681	Bedrock - 1	Yes	1	1	<input type="checkbox"/> No

Bedrock group results when non-contributor deleted: After removing Fred from the team his peers each receive a performance (SPA) factor of 1.

Logout

EFFICIENT FUNCTIONING OF GROUP

1. Organising the team and ensuring things get done
2. Helping the group to function well as a team

SPA: 1

SAPA: 1.01

WB

BA

AV

A

WA

WB

BA

AV

A

WA

PROFESSIONAL JUDGEMENT

1. Provision of critical analysis and recommendations at project review meetings
2. Discernment of the most important project requirements

SPA: 1

SAPA: 1

WB

BA

AV

A

WA

WB

BA

AV

A

WA

Overall: SPA: 1

SAPA: 1

Feedback from your peers

You're innovative approach to the design project was much appreciated. You were always on time with your deliverables and the quality was always to the agreed standard.

Barney I really appreciate your efforts on this

Self rating

The average rating you gave to you and your peers
Your average rating from peers

View my radar diagram

Student results screen when non-contributor deleted from the group.

HOW TO SEARCH THE SPARK^{PLUS} LOG

Chief instructors can search the SPARK^{PLUS} log to confirm student activity (or lack of). The search log function will tell you both the type of activity (login, log out, rate peer etc) and the time it occurred. It also records unsuccessful attempts to logon for example when a student has used an incorrect password. The search log is particularly useful in solving any disputes in regard to students claiming they could not access SPARK^{PLUS} and/or their ratings were not saved. We recommend that you make students aware that you have access to this functionality. When we initially introduced SPARK^{PLUS}, students sometimes complained that they were unable to submit their ratings or could not logon etc. On checking the log we often found that the students were trying to logon after the assessment period had closed or were using an incorrect password. Once students became aware that we had access to a detailed log we have virtually had no erroneous complaints.

The screenshot shows the SPARK^{PLUS} setup interface. At the top, it says 'Keith Willey - logged in as Administrator' with a 'Logout' button. The main area is titled 'Contribution to Group Project 3 (post-assessment)'. On the left, there's a list of subjects under 'Active Subjects', with 'Contribution to Group Project 3' selected. Below this list are buttons for 'New task', 'Modify task', 'Clone task', and 'Delete task'. Further down is the 'Subject Instructors' section with a dropdown menu showing '(CI) keith willey (995679)' and buttons for 'Add to Subject' and 'Delete from Subject'. At the bottom left, there are two buttons: 'Search Log' and 'Manage Accounts'. An arrow points from the text below to the 'Search Log' button.

SPARK^{PLUS} setup screen showing Log button at the bottom of the page

On the setup screen if you scroll down to the bottom of the page you will find the Search Log button. Clicking on the Search Log button will bring up the following screen:

The screenshot shows the 'View Log' screen. It has a header 'View Log'. Below it, there are input fields for 'Name or Account ID' and 'Action'. There are also date pickers for 'Start Date: DD MM YYYY' and 'End Date: DD MM YYYY', followed by a 'Search' button. At the bottom, there is a text prompt: 'Enter a user name and/or dates to find log entries'.

SPARK^{PLUS} View Log screen

In the View Log screen you can enter either a user name (eg first, last or part of a user name) or an account ID number in the Name field. Typically, for students their account ID number is their

student number hence, you can enter a student's student number to view their activity. The log search function is quite flexible allowing you to refine your search using any combination of the available fields. For example, you could simply enter dates to report all activity between certain dates. Similarly, you could add an action eg login, to report all logins during this period. Once you have entered the details of your search click search to report all activity that meets your search criteria.

The screen shot below shows activity in SPARK^{PLUS} for any account that contains the word fred between the specified dates. Note if no dates were entered your search would report all activity for accounts that contain the word fred.

View Log

Name or Account ID Action

Start Date: DD MM YYYY End Date: DD MM YYYY

77 found

UserId	Name	Action	Date
12345678	Fred Flintstone	Assessed peer (memberId)560 (userId)12345679	16 Jul 2011 9:42am
12345678	Fred Flintstone	Assessed peer (memberId)170 (userId)12345679	15 Jul 2011 2:40pm
12345678	Fred Flintstone	Logout from session a2dd898525289da2c82954b8583a60bf	15 Jul 2011 7:06pm
12345678	Fred Flintstone	Assessed peer (memberId)557 (userId)12345680	15 Jul 2011 8:15pm

SPARK^{PLUS} View Log screen showing results for log search of fred.

Similarly, I could search for a specific action like a failed login attempt. Again I recommend refining your search by specifying a start and end date.

View Log

Name or Account ID Action

Start Date: DD MM YYYY End Date: DD MM YYYY

1 found

UserId	Name	Action	Date
12345678	Fred Flintstone	Failed login	23 Jul 2011 1:03pm

SPARK^{PLUS} View Log screen showing results for log search of failed login

Note that you can use part of an action name in your search. For example in the previous search the word failed was used rather than the more specific failed login.

Other common actions that you can search for include:

- Login
- Logout from session
- Assessed peer
- Reset forgotten password
- Altered rating period for user
- Cloned task
- Recalculated results excluding students

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