



# 360° PEER ASSESSMENT

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# Main input/outcomes

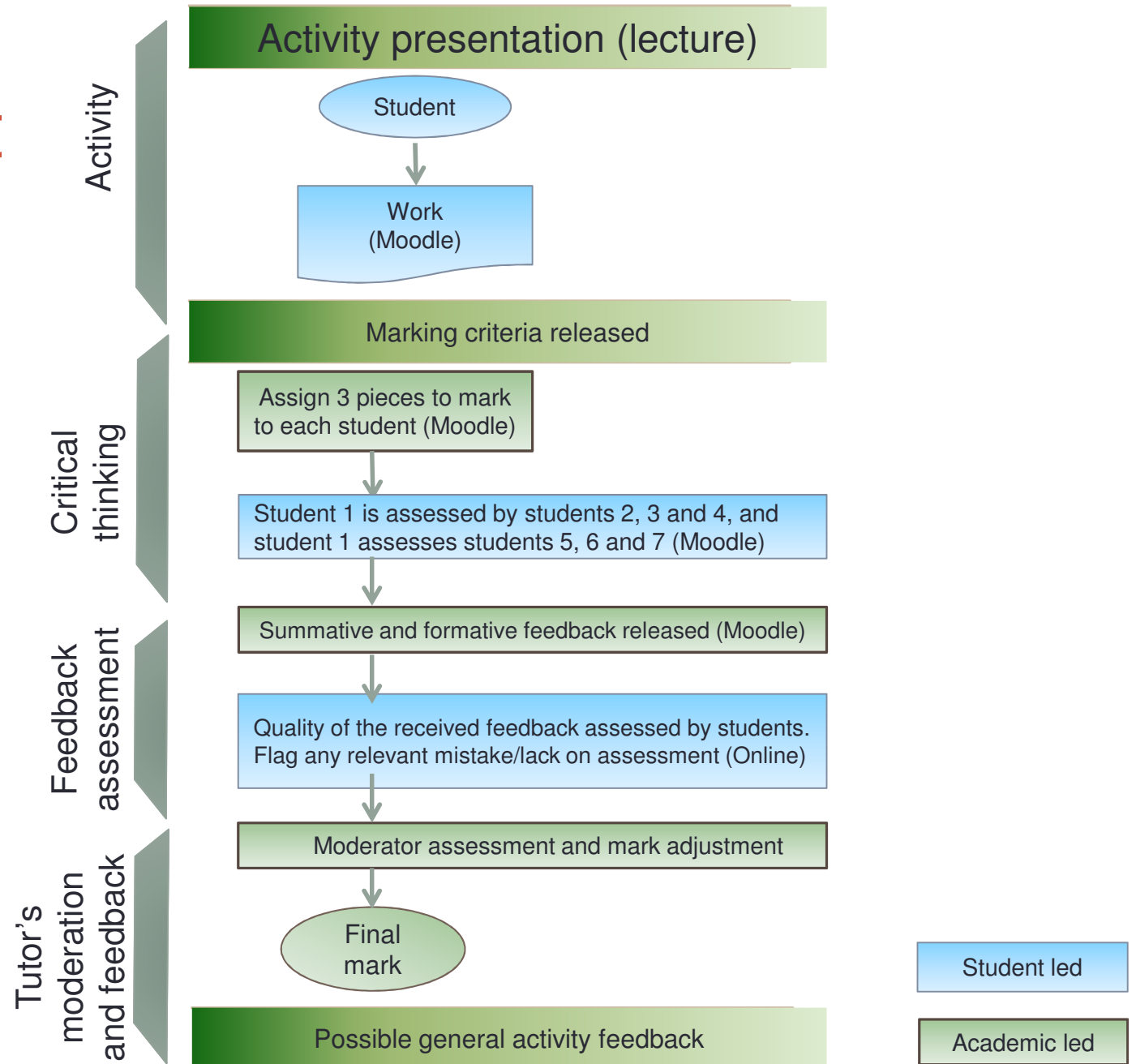
- IOE/UCL Strategic Partnership Teaching and Learning Fund 2014- £5000
- Medical Physics summer studentship 2014 - £230
- 3<sup>rd</sup> year project student 2014/15 (Supervised by Pilar Garcia-Souto and Prof. Alan Cottenden)
- Presented some of the results at the Medical Physics and Biomedical Engineering Departmental Teaching Committee
- Presented at the UCL Arena Exchange Seminars – Monday 2<sup>nd</sup> March 2015
- Presented at the UCL Centre for Engineering Education Monthly Seminar – 25<sup>th</sup> March 2015
- Abstract accepted for the Teaching and Learning Conference 2015
- Aiming for paper at the Journal Assessment and Evaluation in HE

# Needs for assessment

- Academic
  - Promote learning/ engage learners
  - Evaluate knowledge and understanding
  - Identify weaknesses
  - No time consuming
- Students
  - Fair
  - Quality feedback
  - Fast feedback
- Peer assessment
  - Avoid discrepancies
  - Ensure quality and reliability
  - Engage students in the whole process
  - Provide clear marking criteria
  - Anonymous
  - Online system
  - Understand the assessment process
  - Ensure correct understanding of objectives and benefits

# 360° peer assessment method:

## timeline



# 360° peer assessment method

- Final mark
  - 70% for the CW submitted by student
  - 30% for the quality feedback provided by student to their peers
  - Both marks controlled by students in first instance
- (Theoretical) benefits
  - Improvement of students' engagement, i.e. better quality of the feedback
  - Provide a standard route to deal with “complaints” over marks received
  - Improvement of students' experience

# Platform – what the students see

## Maths coursework 2



Mathematical Modelling and Analysis I - ENGS103P (360 Peer Assessment Grouping)

*Coursework No. 2*

Topic Coverage:

- Topic 3: Engineering Calculus
- Topic 4: Engineering Uncertainty

**Date When Coursework Set:** 20th October 2014

**Coursework Submission Deadline:** 31st October 2014, 4pm

**Date of Coursework Return:** 14th November 2014

Restricted: Available until 11 June 2015.



[Maths CW2 - Solutions and marking scheme](#) 1.9MB PDF document

→   <https://moodle.ucl.ac.uk/mod/workshop/assessment.php?asid=65121>

**Comment** Clear working and proof of that which is asked in the question.

#### Aspect 13

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### Topic 7 - Describing the world in 3D, vectors and matrices: Question 1d

**Grade** 15 / 15

**Comment** Clear and concise working, correct method produces correct answer.

#### Aspect 14

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### Topic 7 - Describing the world in 3D, vectors and matrices: Question 1e

**Grade** 15 / 15

**Comment** Clear working with correct answer given.

#### Aspect 15

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### Topic 7 - Describing the world in 3D, vectors and matrices: Question 1f

**Grade** 24 / 25

**Comment** For the graph with the three components on the same axes, there is no legend to differentiate between the three plots.

Otherwise the plots are all excellent. Again some clarification of the code with comments would have been helpful

#### Overall feedback ▾

Overall this was excellent work, with concise, thorough and clear working and almost completely correct.

There were a few minor errors, such as not fully simplifying final answers, forgetting to square root the modulus functions, and leaving the legend out of one of the matlab plots.

It would have been helpful to have more comments in the matlab code, and also more comments in the longer algebra derivation questions to clarify some of the steps.

Fantastic overall.

## Assessment of Feedback

You have now received feedback from three different students who have evaluated your work. It is now necessary for you to assess each piece of feedback received and give an overall mark out of 100 for the general quality and fairness of the assessment for the marker.

\* Required

Your allocated ID \*

Your PIN \*

The marker's allocated ID \*

Did the feedback address all marking criteria? \*

Was there a grade and satisfactory justification for each aspect?

1 2 3 4 5

Not at all      Thoroughly

Justification for score \*

How clearly was the feedback communicated? \*

Did you find it difficult to understand any points the marker made?

1 2 3 4 5

Not at all clearly      Very clearly

Justification for score \*

Do you agree with all the feedback you received? \*

Were there any points made that you feel were not in accordance with your submission?

1 2 3 4 5

Not at all      Completely

Justification for score \*

Especially if not in agreement with the feedback

If you think there is a significant error in the marking, please indicate: in which section, the mark you were awarded and the mark that you consider you should have obtained

Overall % mark for feedback received \*











Final comments \*

Submit



# Academic perception

## Admin page

	ID4273	68.60 ( <del>20.50</del> / <u>29.00</u> )<		<u>68.37</u>	39.90 ( <del>24.90</del> / <u>30.00</u> )>		28.67
		68.60 ( <del>20.00</del> / <u>29.00</u> )<		52.50	69.30 ( <del>29.80</del> / <u>26.00</u> )>		4.00
		67.90 ( <del>20.50</del> / <u>29.00</u> )<			59.15 ( <del>27.64</del> / <u>30.00</u> )>		
	Coursework 3 - ID8848	53.55 (26.00)<  Nis		52.50	68.60 ( <del>29.40</del> / <u>4.00</u> )>		4.00
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		49.00 ( <del>27.20</del> / <u>20.00</u> )<			60.90 ( <del>26.60</del> / <u>4.00</u> )>		
	Coursework #3	64.40 ( <del>27.00</del> / <u>27.00</u> )<		64.52	68.60 ( <del>20.00</del> / <u>29.00</u> )>		29.67
		66.15 ( <del>20.00</del> / <u>29.00</u> )<			24.15 (30.00)>	 	
		63.00 ( <del>20.50</del> / <u>15.00</u> )<			68.60 ( <del>28.70</del> / <u>30.00</u> )>		
	complex numbers and vectors	50.75 ( <del>20.00</del> / <u>21.00</u> )<		54.37	56.70 ( <del>27.00</del> / <u>11.00</u> )>		11.00
		53.55 ( <del>27.15</del> / <u>29.00</u> )<			35.00 ( <del>24.75</del> / <u>11.00</u> )>		
		58.80 ( <del>20.00</del> / <u>27.00</u> )<			55.65 ( <del>20.00</del> / <u>11.00</u> )>		
	CW3 - ID8984	68.60 ( <del>20.40</del> / <u>4.00</u> )<		<del>68.48</del>	68.60 ( <del>29.40</del> / <u>30.00</u> )>		29.33
		66.85 ( <del>20.70</del> / <u>15.00</u> )<		<u>70.00</u>	65.45 ( <del>20.00</del> / <u>28.00</u> )>		
		70.00 ( <del>20.00</del> / <u>27.00</u> )<			69.30 (30.00)>	 	
	ID8170	64.75 ( <del>27.34</del> / <u>21.00</u> )<			54.95 ( <del>20.00</del> / <u>29.00</u> )>		

<https://moodle.ucl.ac.uk/mod/workshop/view.php?id=1773033>

# Academics perception (stage 4)

Student's ID	Student Name	Marked by	Mark (/70%)	Average (/70%)	SD	Moderated Mark
ID5404	James student	Laura student Sara student Azalea student	49 60.9 62.3	57.4	7.3	
ID5273	Edward student	Martin student Richard student Alan student	38.5 47.6 39.9	42.0	4.0	
ID7848	Laura student	Richard student Alan student George student	37.8 39.2 41.3	39.4	1.4	
ID7876	Sara student	James student Martin student Azalea student	63 61.6 65.1	63.2	1.4	
ID5531	Martin student	Laura student Julia student Katie student	23.1 12.6 12.6	16.1	4.9	
ID9984	Richard student	James student Zaheer student Julia student	65.1 57.4 70	64.2	5.2	
ID9170	Azalea student	Edward student Zaheer student Julia student	44.8 55.3 53.2	51.1	4.5	
ID6203	Alan student	James student Edward student Laura student	52.5 60.9 56	56.5	3.4	
ID9482	Zaheer student	Richard student George student Katie student	16.1 8.4 9.1	11.2	3.5	
ID7010	Julia student	Edward student Azalea student Alan student	40.6 63 48.3	50.6	9.3	
ID6930	George student	Sara student Martin student Katie student	40.6 39.9 42	40.8	0.9	
ID0344	Katie student	Sara student Zaheer student George student	63 51.8 51.8	55.5	5.3	

# Academics perception

(stage 4)

“Quality of assessment forms”

Marker's Name	Student Name	Justification for score	If you think there is a significant error in the marking, please indicate: in which section, the mark you were awarded and the mark that you consider you should have obtained	Overall % mark for feedback received	% (/30)	Final comments	Mean % (/30)	SD	Moderated Mark
James	Alan	however a few of the scores seemed extremely unjustified		70	21	Overall it was alright	25.5	3.2	
	Sara	Good feedback explaining mistakes - a bit harsh in test		95	28.5	Good feedback explaining marks			
	Richard	I thought that the feedback was constructive, relevant to my work		90	27	I thought this was very well marked.			
Edward	Alan	Mostly justified but some scores given seemed illogical.		78	23.4	Overall good	21.3	6.9	
	Julia Azalea	I agree with all of the marks they have given for the questions they too harsh	The following parts of questions were not marked as the graphs did not appear on the document:	95	28.5	Overall, the feedback was very good			
Laura	James	I think the feedback they gave me was good, they commented on all the points that I did well		80	24	the feedback was clear and well structured.	24.5	3.1	
	Martin	feedback. Points me in the right direction, also provides deducted were unclear mainly because the mark scheme was		95	28.5	Good feedback thanks!			
	Alan	good, they commented on my strengths and commented on my weaknesses as well, and		70	21	overall good			
Sara	James	Feedback given clearly, but no suggestions for improvement		90	27	The feedback was clear and well structured.	25.5	4.4	
	George	Comments written on each question and clear reasons for marks given	Axis are the correct way round? x 2	65	19.5	Written out clearly, but errors in there justifications.			
	Katie	The marker justifies why each answer received a particular score - sometimes too harsh and sometimes too generous.		100	30	Great feedback!			
Martin	Edward	Did not include marker id but explained where marks where some reason didn't correctly provide their ID (?)	Aspect 6 seems to be marked very harshly as our test ran very well and gave lots of useful data. Awarded 3 marks although I would think the answer would be in the 6-8 mark range.	80	24	Overall fair feedback. Can see why the marker awarded some	23.8	2.7	
	George	Feedback always refers to the mark scheme. Marks seem to be consistent with the mark scheme.		68	20.4	Clearly shows why marks were lost if the feedback but			
	Sara	Good feedback, with lots of specific points relevant to my work.	The person assessing my coursework gave me 0/1	90	27	overall really good!			
Richard	Edward	I agree with score and comments		90	27	Fair feedback and improvements are suggested where a bit of effort has been put in to	28.8	1.3	
	Laura	They didn't really comment on what I'd done well, mainly what I'd done wrong. However the		100	30	assessing the work. Agree with my score			
	Zaheer	Any marks deducted was completely justified.		98	29.4	Overall the feedback was okay, more comments on			
Azalea	James	Good feedback explaining mistakes, although I don't really understand the comments about		70	21	Overall, the feedback was very clear and thorough.	26.5	3.9	
	Julia	a bit generous but they justify why each score was given	Aspect 6 appears to be harshly marked. Our test	95	28.5	Overall - good feedback explaining marks allocated!			
	Alan	Good feedback explaining mistakes, although I don't really understand the comments about		80	24	Good feedback, very constructive.			
Alan	Edward	thought that it could have been more specific including more good feedback	The following parts of questions were not marked :	90	27	feedback was clear and thorough.	26	1.4	
	Julia	have given more specific feedback		90	27	Good scores are justified, however i believe it			
	Laura	not bad helpful.	each step' - mark awarded 6/10 - I feel I should have been awarded 10/10 as I have previously justified that as this was not a cyclical test, the	60	18	need more details marking was quite poor, as it was often			
Zaheer	Richard	The marker did not include a justification why and not some of the questions which makes it difficult to improve my report as I		50	15	inaccurate or more comments on why certain marks	17.5	1.9	
	Katie	feedback, after seeing the mark scheme it makes sense why i I thought that this was well marked but perhaps slightly over		85	19.5	were given for all my information and objective. Good			
	Julia	need more details		90	27	feedback. Good The marking was thorough and			
George	Alan	limited responses with little to no specific feedback.		70	21	Very little was given however i agree with the scores	23.25	2.3	
	Laura	justification of result score for individual questions but lack of improvements needed to gain		85	25.5	more information on how to improve, comes across very			
	Katie	me quite low, the reasons are justified. Gives positive		100	30	positive and Very clear and with information on how			
Katie	Martin	Very clear and with information on how to improve.		79	23.7	to improve.	26.85	3.1	
	George								

Surgical moderations

# Trials

- Med. Phys & Biomed Eng Department, UCL:
  - 3 lab report-based assignments (MPHY101P, MPHY102P)
  - 2 maths assignments (ENGS103P)
- Institute of Education
  - Design-based assignment (Masters/Certificate in Teaching and Learning in HE)

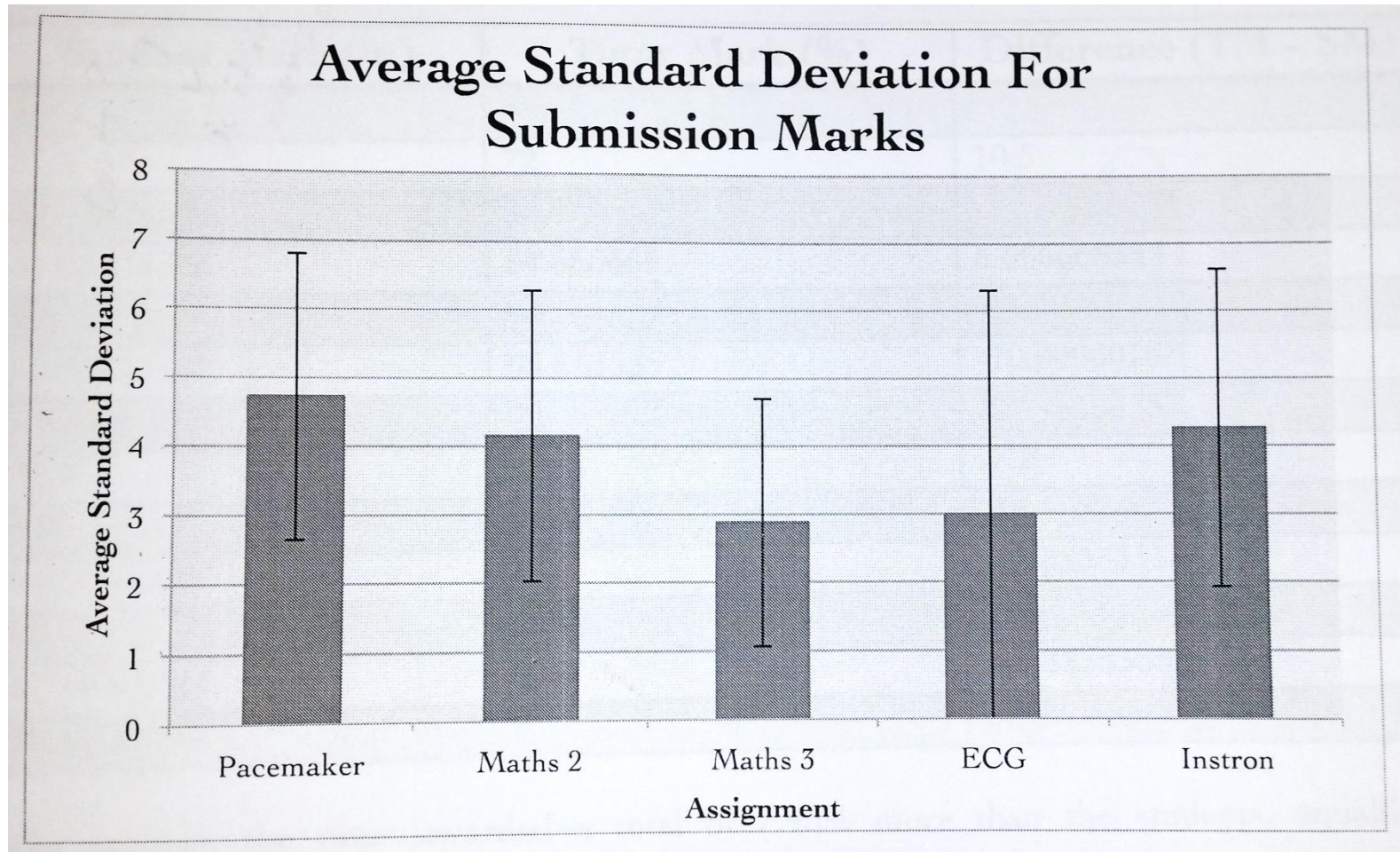
# Trial at IoE

- 12 Students taking a Masters or Certificate in Teaching and Learning in HE
- Design a written assessment that encourages deep learning in 3 loosely discipline based groups
- Designs were 360° peer assessed. Teacher moderated if feedback mark < 6/10
- The 360° peer assessment was discussed
  - Students have both student/lecturer point of view

# Trial at IoE

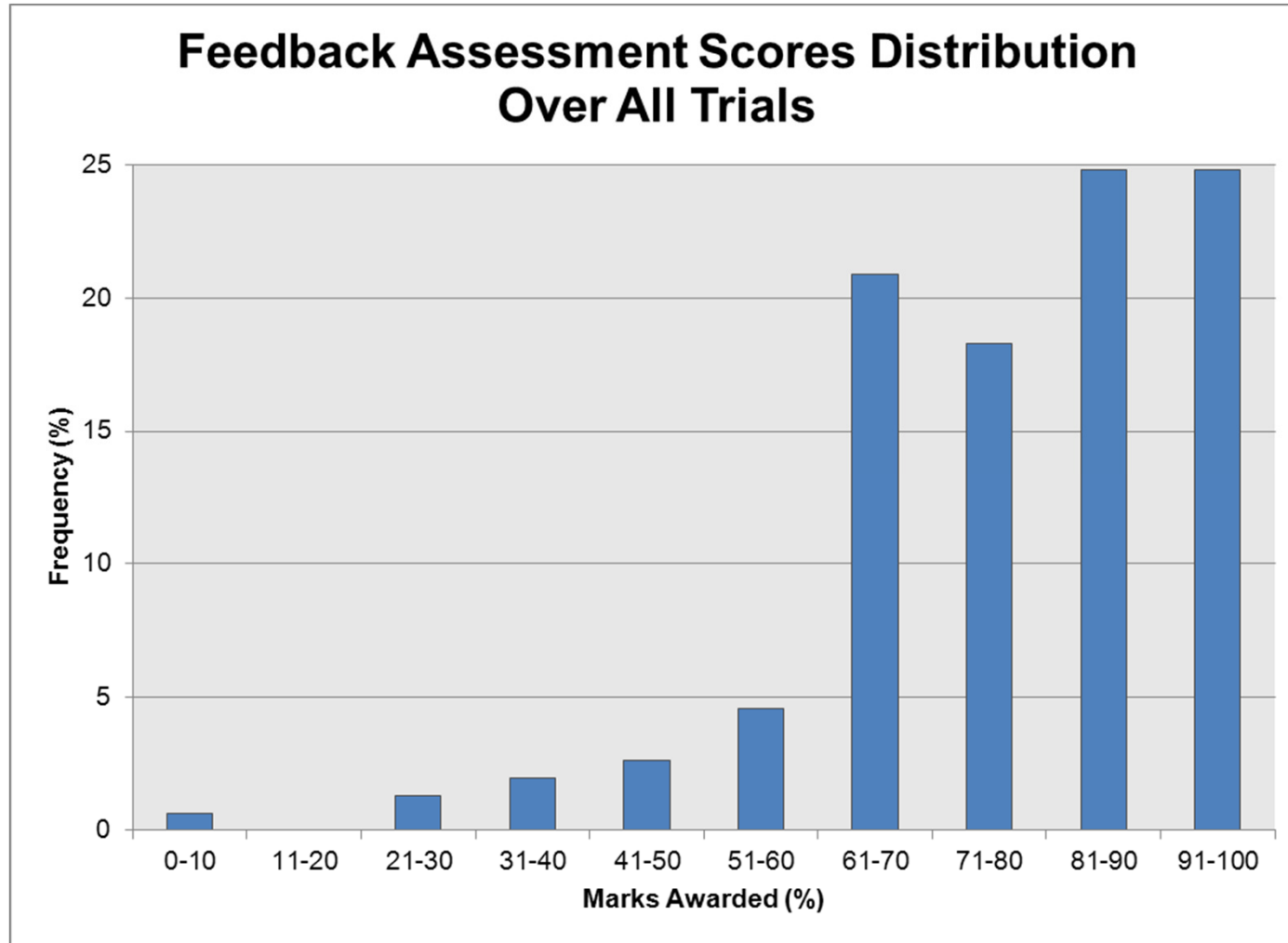
- Reliability of peer feedback
  - Concerns about competence of student as assessors are persistent but teacher moderation, anonymity and clarity of criteria may help improve it.
- Developing student assessment literacy
  - Peer assessment skills can be developed over time
- It may be that a single quite short and incomplete encounter with 360 peer assessment will not be sufficient even with Masters students to convince them that this is a safe process for summative assessment.
- *“For me I think the 360 degrees is very important. It’s good to know what others think about your feedback so you can improve in the future on what you say” (student 7).*

# Trials at Medical Physics and Biomedical Engineering Stage 1 & 2: marking of CW



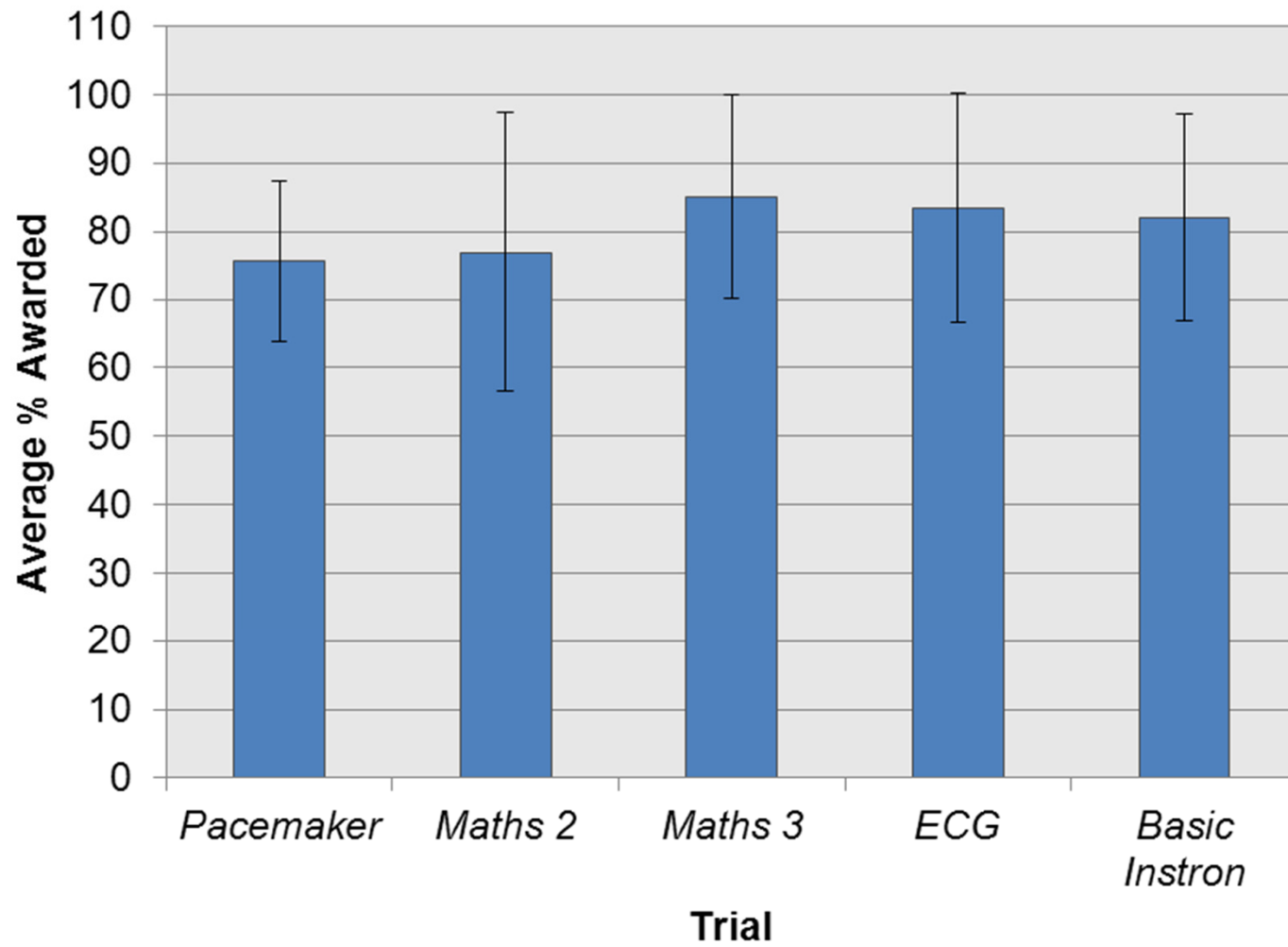
Average SD = 3.80% (0.74%)

# Stage 3: Assessment of feedback





## Average Feedback Assessment Score



# Moderations needed

Assignment	N° submissions	N° moderations
Pacemaker	11	2
Maths 2	13	2
Maths 3	13	0
ECG	12	2
Basic Instron	12	2

## Stage 1-2:

SD of CW mark  
>= 7 marks

(1 in every 8)

Assignment	N° feedback forms	N° complains
Pacemaker	33	2
Maths 2	34	12
Maths 3	28	11
ECG	23	5
Basic Instron	34	7

## Stage 3:

Low mark for  
feedback /indicate  
conflictive sections  
→ surgical  
moderations

(24.6%)

# Correlation between Assessment scores and feedback assessment scores

Interchanged marks are not necessarily related

39.90 ( <del>24.00</del> / <u>30.00</u> )<
35.00 ( <del>24.75</del> / <u>11.00</u> )<
50.05 ( <del>20.00</del> / <u>20.00</u> )<

59.15 ( <del>27.04</del> / <u>30.00</u> )<
60.55 ( <del>27.50</del> / <u>27.00</u> )<
58.10 ( <del>20.00</del> / <u>21.00</u> )<

68.60 ( <del>20.40</del> / <u>4.00</u> )<
66.85 ( <del>20.70</del> / <u>15.00</u> )<
70.00 ( <del>20.00</del> / <u>27.00</u> )<

Assignment	Pearson correlation coefficient
Pacemaker	0.280
Maths 2	0.214
Maths 3	0.242
ECG	0.456
Basic Instron	-0.176

# Time spent by academics/admin

Stage	Item	Time/notes
Set up	Generate marking scheme	Done only once
	Platform set up	1h
Grade evaluation	Flagging up discrepancies	4h admin Can be greatly reduced by means of a computer program
	Moderation	<15 min per moderation
	Marks upload/amendment	6h admin Would greatly reduce if single platform is used

# Students perception

- **Information gathered by:**
  - Comments and marks provided in the “Quality of assessment forms” they submit for each peer feedback received
  - End-of-trial questionnaire
    - Key questions:
      - Efficiency
      - Fairness
      - Influence of the feedback mark on the effort put on marking others
      - Encourage feedback engagement
      - Development in learning
      - Comparison with other peer assessments and tutor assessment
  - Formal interviews
  - Informal corridor talks

# Students perception

- **Positives:**

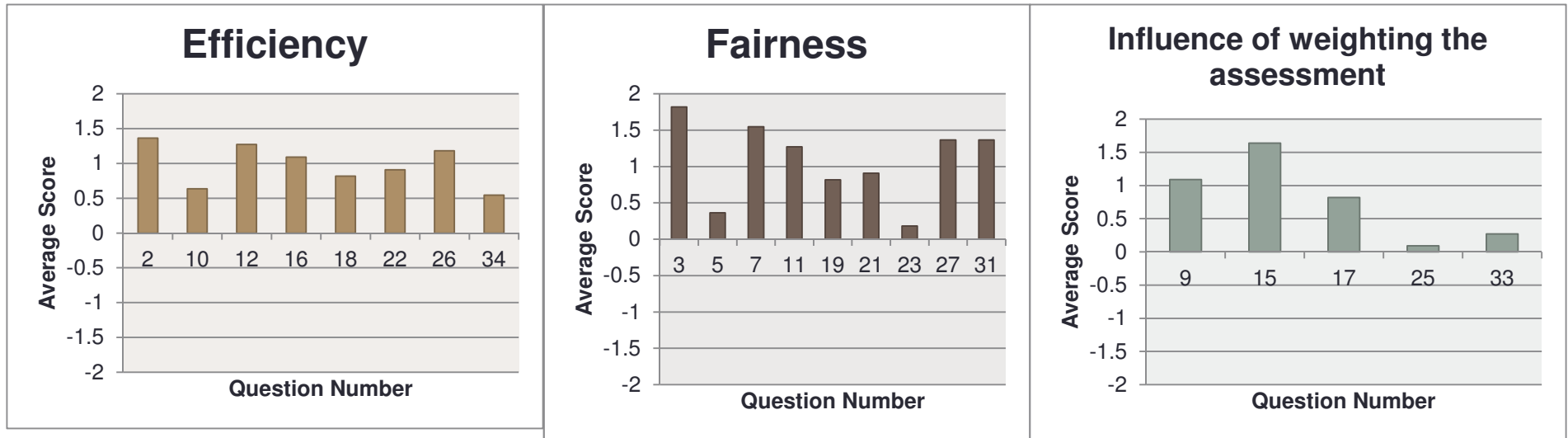
- Prefer this to other peer assessment trialled as they can dispute the feedback/mark
- Objective marking as each grade requires justification
- Provide better feedback as mark depends on quality
- Understand marks given/penalized
- Makes you really look at the marking scheme
- Requires to read the feedback
- Found the feedback useful – “makes you think more and remember work better”
- No issue with the platform (Moodle and Google forms mostly)
- Anonymous = good, especially in small groups
- Feedback received quickly
- 30% allocation to assessment = good
- Find tutor moderation as a necessary stage and were satisfied with moderation received
- More reliable for subjective work as 3 people marking versus 1 tutor

# Students perception

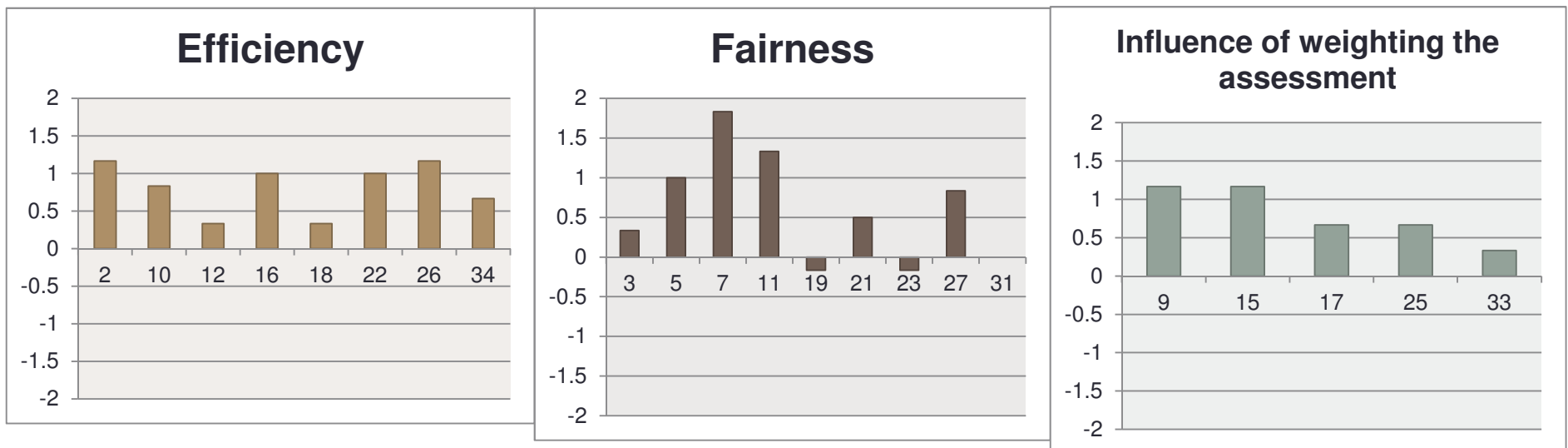
- **Negatives:**

- Don't trust peers' competency, except when the answers are clear-cut
- Would rather not use system for formative/summative exams
- Prefer tutor for non-subjective assignment – knows questions better
- Takes a lot of time and effort from you
- Have other priorities (lectures, courseworks etc.) over this
- Plagiarism might go undetected, especially in big groups
- *Difficult to mark others as everyone does it differently and can be difficult to understand how they got the answer*
- *Would prefer own freedom of choice to look at feedback*

## Report-based assignment



## Maths-based assignment





# Encountered problems

- Plagiarism can go undetected
  - Solutions? Run the documents by plagiarism software?
- Using two platforms
  - Had conversations with ELE and Moodle developers to provide a unified platform – slowly but ongoing
- Late submissions delay later stages
  - Send reminders to the students before the deadline
  - 24h gap between stages
  - >24h late and marking scheme released → lose all marks
  - Do not complete stage 2 or 3 → lose a % of the 30% mark.

# Interested on knowing more/trying the 360° peer assessment?

- Contact Pilar Garcia-Souto [p.garciasouto@ucl.ac.uk](mailto:p.garciasouto@ucl.ac.uk)
- You decide the activity.
- We help you to set up and run the system.



Thanks for listening.

Questions?