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Rubrics in Instruction and Subject Assessment Moderation

Michael Prosser, Pakey Chik, Alice Shiu, Joseph Chow, Laura Zhou

Co-organized by: The Working Group on Subject Quality Assurance & The Educational Development Centre



Why this workshop?

Criterion-Referenced Assessment (CRA), vs Norm-Referenced Assessment, is

"...a process of evaluating (and grading) the learning of students against a set of pre-specified qualities or criteria, without reference to the achievement of others (Brown, 1998; Harvey, 2004)."

It has a long history and still widely adopted.

Rubric is a scoring tool commonly used in CRA. (Andrade, 2000; Greenberg, 2015; Reddy & Andrade, 2010)







Why this workshop?

Rubric serves a summative function evaluating the quality of student work.

It also serves a formative function to help students better understand what they are to achieve and how.

Research on scoring rubrics has been dominated by a focus on the summative aspect until recent years (Jones *et al*, 2017; Panadero & Jonsson, 2013).

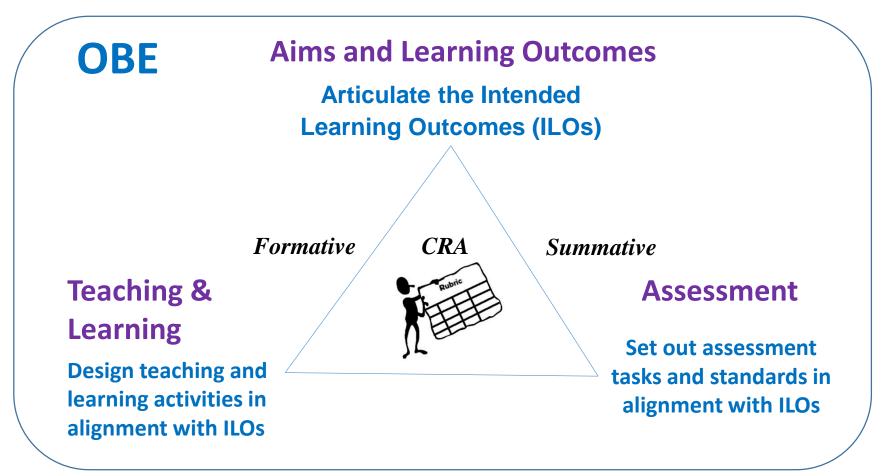
A high quality learning process requires a balance between formative and summative functions ensuring that summative assessment does not dominate.





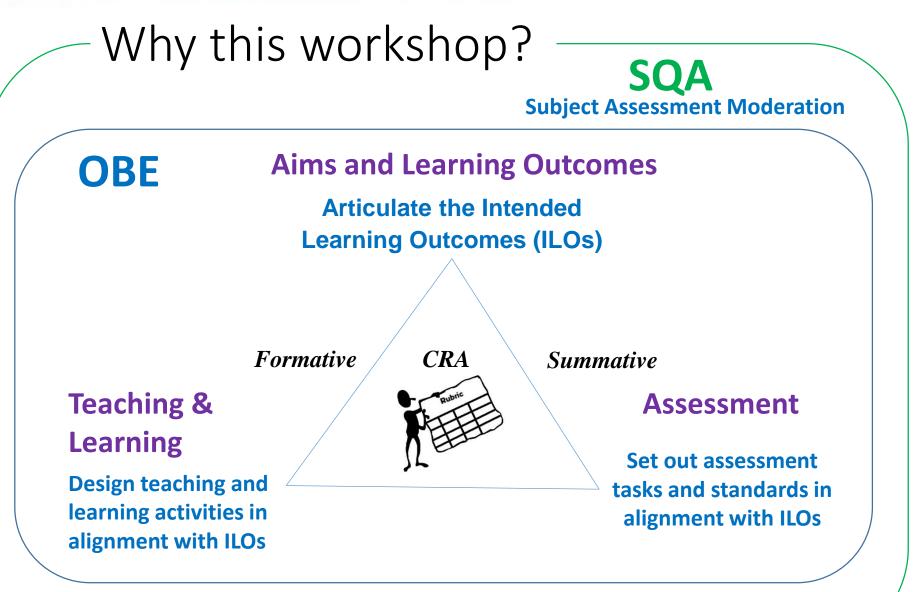
Why this workshop?

A central role of rubrics in facilitating the alignments in OBE



- * OBE = Outcome Based Education; SQA = Subject Quality Assurance;
- * CRA = Criterion-Referenced Assessment





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- * CRA = Criterion-Referenced Assessment

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What to take away?

- Some ideas about the instructional use of rubrics
- An understanding of the role of rubrics in subject assessment moderation and how moderation operates for quality assurance
- Information about using an online tool to streamline the processes of subject grading and assessment



Rubrics in instruction

Structure

- Background: subject and TDG information
- Instructional use of rubrics, hands-on activity
- Impact on assessment and student perception
- Summary of our learnings
- Ongoing developments



Background

- Rubric Policy 2016: Rubrics for major assessments
 - Show it to students prior assessment
 - Use it in marking and grading
- Part of a TDG project
 - Rubrics are not self-explanatory for students and assessors
 - Support teachers to use rubrics for instructional purposes beyond marking and grading
 - Develop and deliver a Rubric Information Session at the 3rd week for AF3625 Engineering Economics

Delivery	Focuses
Sem 1, 17/18	Prepare: presentation videos as exemplars (filming/ choosing/ editing); teacher explanation; in-class activities
Sem 2, 17/18	Pilot Rubric Information Session on the presentation task; survey
Sem 1, 18/19	+ written assignment exemplars; + explanation of grading decisions
Sem 2, 18/19	Modified from re-run; + moderation procedures



AF3625 Engineering Economics

Subject title	AF3625 Engineering Economics
Nature of subject	Economics
Level of subject	Undergraduate
Categories of learning outcomes	 understand how the relevant economic factors shape the environment within which an engineering company operates evaluate the financial condition of a company based on the financial statements apply the basic cost accounting techniques in the planning and control of engineering and production activities
Assessments	 Group presentation (10%) Individual written assignment (15%) Tutorial attendance and participation (5%) Mid-term test (20%) Final Examination (50%)



Subject requirements

Subject title	AF3625 Engineering Economics
Group presentation	 Presentation groups: Students form into groups of 3-4 Each group presents in class the answers to the questions assigned in a Tutorial Question Set Teacher gives instant feedback and assigns an overall presentation mark for the group
	 Participants: Students have to prepare answers for questions assigned in each tutorial They are required to listen attentively, raise questions or offer comments relating to the presentation
Individual written assignment	 Each group member submits an individual written assignment containing the answers to the questions specified in the Tutorial Question Set Teacher gives an individual mark for each student

AF3625 Presentation rubric - adapted

Criteria

Performance category

Centre

Criteria (20 marks=10% of total)	Excellent	Satisfactory	Barely Satisfactory	Unsatisfactory
Elaboration & Details (5)	Details are fully elaborated and analyzed, including all necessary and relevant information necessary for full understanding. Descriptor	Details are mostly elaborated and analyzed, including most necessary and relevant information necessary for understanding.	Details are partially elaborated and analyzed, including a few necessary information but without clarification or description.	Details are not elaborated and analyzed. Most necessary information is missed out.
PowerPoint Design (3)	All slides display elements of effective design. Fonts, colors, backgrounds, etc. are effective, consistent and appropriate to the topic and audience. A variety of types of supporting materials (explanations, examples, illustrations, statistics, analogies) make appropriate reference to information or analysis that significantly supports the presentation or establishes the presenters' credibility on the topic.	Most slides display elements of effective design. Most fonts, colors, backgrounds, etc. are effective, consistent and appropriate to the topic and audience. Supporting materials (explanations, examples, illustrations, statistics, analogies) make appropriate reference to information or analysis that generally supports the presentation or establishes the presenters' credibility on the topic.	Most slides display elements of effective design. A few fonts, colors, backgrounds, etc. are effective, consistent and appropriate to the topic and audience. Insufficient supporting materials (explanations, examples, illustrations, statistics, analogies) make reference to information or analysis that minimally supports the presentation or establishes the presenter's credibility on the topic.	A few slides display elements of effective design. Most fonts, colors, backgrounds, etc. are not effective, consistent and appropriate to the topic and audience. No supporting materials (explanations, examples, illustrations, statistics, analogies) are included to support the presentation or establish the presenters' credibility on the topic.
Language & Presentation Skills (3)	Language choices are concise and compelling, and enhance the effectiveness of the presentation. Language in presentation is appropriate to audience. Delivery techniques (posture, gesture, eye contact,	Language choices are understandable and generally support the effectiveness of the presentation. Language in presentation is appropriate to audience. Delivery techniques	Language choices are mostly understandable and generally support the effectiveness of the presentation, with some ideas articulated unclearly occasionally. Language in presentation is appropriate to	Language choices are unclear and minimally support the effectiveness of the presentation. Language in presentation is







Rubric Information Session - Lesson plan

50 min at weekend of Week 3

Sequenced steps in a rubric tutorial	Student engagement activities	Estimated time duration (Total approx. 50 min)
 Teacher introduces and explains rubric: What is rubrics? How can rubrics improve your learning? The rubrics used in this course (written assignment and presentation) 	Lecturing Polling/ Survey	10-15 mins
 Students get hands-on experience in using the rubric to assess the presenters' performance: Students study the presentation rubric (3-5 min) Students watch the presentation example (the video shown) and rate the presenters' performance with reference to the given rubric In groups, students discuss and come up with agreement Teacher explains why a performance rating has been given according to the performance descriptors Repeat this process for written assignment 	Polling/ Survey	25-30 mins
 Wrap up and summarize the session 		5-10 mins



Hands-on activity

- Study the presentation rubric
- Watch the presentation video
- Individually rate the presenters' performance with reference to the given rubric criteria
- Form groups to discuss and decide on one final rating
- Teacher tells and explains why a performance rating was given according to the performance descriptors



Using the rubric

- Watching the videos
- Please then rate on
 - PowerPoint Design

https://zeetings.com/josephchow





Explanation - PowerPoint Design

4.1(b)

 If the market for tutoring services is perfectly competitive and the price of tutoring services per hour is \$120. Assume there is always a demand for the services that David's school can provide. How many tutors should David hire? What is David's monthly profit?

• $MR = \Delta TR / \Delta q$

Q 3.3c:

3.3 The owner of a grocery store currently only allows his customers to pay by cash but not by electronic debit card. Under the current system a cashier can of 960 transactions per hour. The store currently has an average of 360 transactions per hour and employs 12 cashiers. Each cashier is pair 338 per hour. The fixed cost of the current system is zero.

The owner is considering accepting his customers' payments by electronic debit cards. The electronic debit card system enables his cashiers to handle an <u>average</u> of 120 transactions per hour. However, the owner has to pay a fixed cast averaging to \$120 per hour for the operation of the electronic debit card system.

Suppose a new competitor is expected to open in the same area and sales level of the grocery store is expected to decrease to <u>720 transactions per hour</u>. Explain whether the owner should use the electronic debit card system or continue to use the current system.

4.2(c)

In response to climate change, the government of Country X would like to reduce crude oil production and consumption by means of taxation. Explain briefly what type of tax (a per unit tax or a lump sum tax) the government should impose. How would this tax affect the oil company's output and profit?

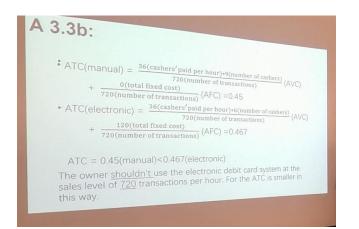
The government should use per unit tax

Per unit tax: a fix amount of tax for each unit of good or services sold

Lump sum tax: a fix amount tax unrelated to taxed entity and circumstance.

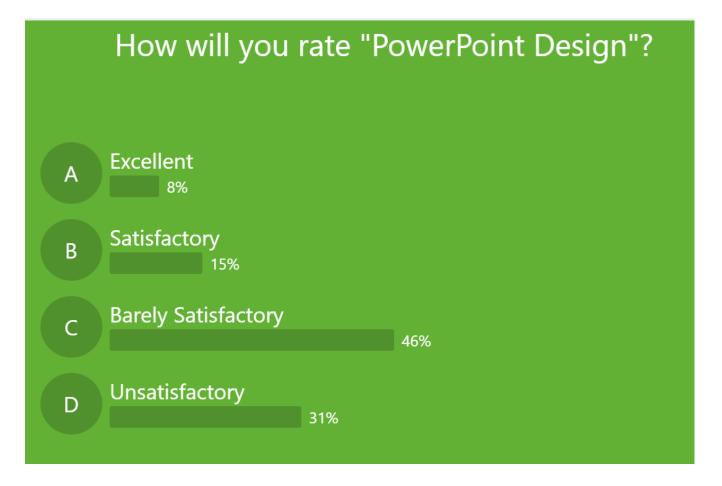
Marginal revenue stays the same

For per unit tax, marginal cost increases, average cost increases lump sum tax remains the same.





Students' responses



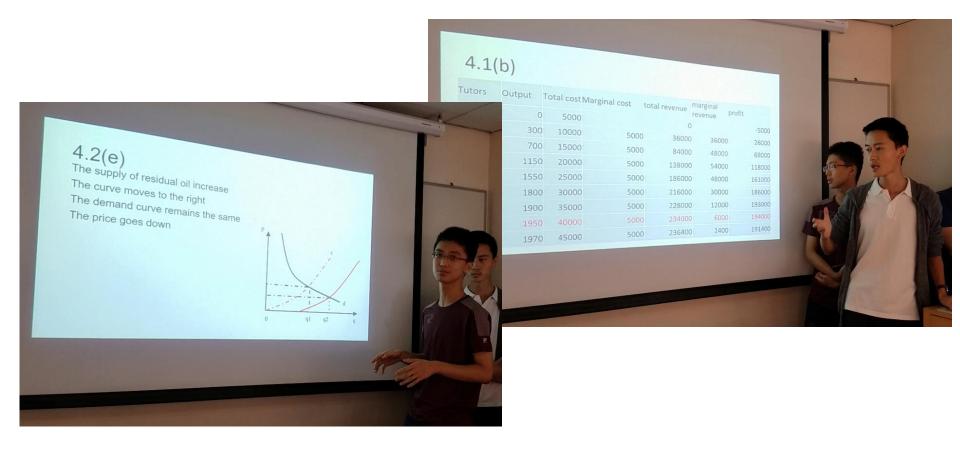


Using the rubric

- Please then rate on
 - Language & Presentation Skills



Explanation - Language & Presentation Skills





Students' responses





Students' perception

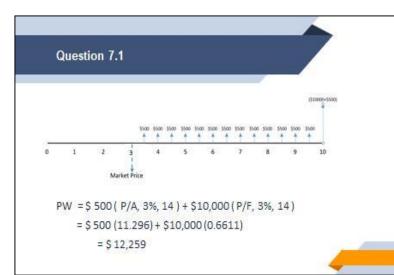
- Students commended:
 - Everything is good; nothing needs to be changed
 - Very good! Lots of help
- Some students expressed they want:
 - to have the session on weekdays, with more timeslots
 - to see the performance of "excellence"



Markers' perception

Presentation

- Better presentation performance compared to previous cohorts
- Better and more consistent format and style
- With necessary and appropriate elements on slides



Written assignment

 On average better elaboration and analysis and more coherent organization of ideas

Question 1.1 (a) In Country A, the most popular crab-fishing months occur between October and January. During these months, the demand for crab is relatively high and the crab fishermen are able to sell their crab catches for about \$3 per kg. However, during February to September, when the demand for crab is relatively low, the crab fishermen are able to sell their crab catches for about \$4 per kg. Does this violate the law of demand? Use a demand and supply diagram to explain your answer.

Solution: To answer this question, we need to first define the Law of Demand: it states that the higher (lesser) the price of the good the less (more) of the good will be demanded. It is stated that between October to January the demand for crabs is high. However, we can also tell that as these months are popular for crab-fishing, there will be an increased supply in this period as fisherman will have a healthy catch. During February to September, the demand for crabs decreases while price increases from \$3 per kg to \$4 per kg. The question doesn't give us any hints about the supply but we can tell that the supply decreases too by analyzing the following equations.

- Supply $\downarrow \rightarrow$ Market Price \uparrow Quantity supplied \downarrow
- Demand $\downarrow
 ightarrow$ Market Price \downarrow Quantity demanded \downarrow

In order for the price to rise the decrease in supply (first equation) has to be greater than the decrease in demand (second equation) so the first equation can outweigh the second one. The supply curve shifts to the left (from S to S*) and Demand curve also shifts to the left (from D to D*) as shown in Figure 1.1a. As the decreases in supply causes the Market price to increase from \$3 to \$4, consumers adjust their buying plan resulting in Quantity demanded to decrease from Q1 to Q2 as shown in Figure 1.1a. Therefore, the law of demand is not violated.



Summary of our learnings

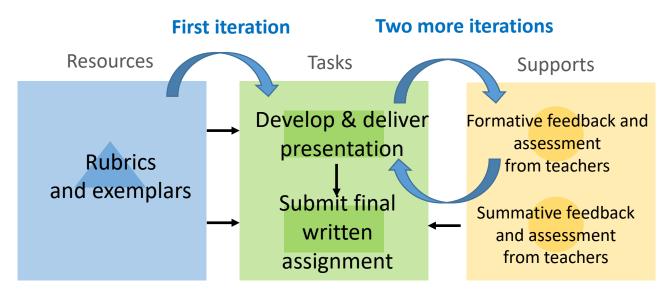
- 1. Learning support provided by instructional use of rubrics
 - A. Explaining the rubrics with exemplars
 - Communicated the expectations and promises realistic judgment by students
 - Reduced confusion
 - Highlighted the contractual meaning of the rubrics
 - Reduced likelihood of grade appeals



1. Learning support provided by instructional use of rubrics

B. Provision of feedback / feedforward

• The assessment design in the subject enabled assessment for learning through feedback connected between tasks



Continuous assessment with double feedback loops through rubrics. (adapted from Bjaelde & Lindberg, 2018)



2. Benefits of using rubrics in instruction

Student perspective

- Received extra feedback/ feedforward for their learning
- Reduced guessing the judgmental standards
- Set realistic learning goals

Teacher perspective

- Maintained the judgment by teachers
- Provided guidance to students on expectations
- Reduced grade appeals

Management perspective

- Provide evidence-based marking and grading
- Support managing tutor's marking quality
 - Consistency in marking practice among raters
 - Support staff development to new teachers in assessments





Ongoing developments

- Depending on staffing resources, we may have different tutors helping out in different semesters
- New tutors may be less proficient with judgment
- Revisions made to improve Rubric Information Session
 - Edited video and rated by each criterion
 - + Written assignment exemplars



Revised Rubric Information Session for Written Assignment

Question for Written Assignment

Mary and Margaret have the same preferences and incomes. Just as Mary arrived at the cinema to watch a 3D movie, she discovered that she had lost the \$100 ticket she had purchased earlier. Margaret also just arrived at the cinema planning to buy a ticket to watch the same movie when she discovered that she had lost a \$100 note from her wallet. If both Mary and Margaret are rational (who make decisions to maximize economic surplus) and both still have enough money to pay for the ticket, is one of them more likely than the other to go ahead to watch the movie anyway? [Hint: You should consider only the relevant information provided and do not add your own assumption.]

Example A (Rating:

- * The \$100 Mary had paid for the lost ticket was a sunk cost. Similarly, Margaret should not consider the lost \$100 note.
 - For both women, the cost of buying another ticket to watch the movie is only \$100 but not \$200.
 - They will get the same (marginal) benefit from watching the movie.
 - The loss of the ticket or the \$100 will have the same effect on the maximum amount they are willing to pay for the movie.
- Both women paid the same cost of the movie and the benefit they both get from the movie will be the same after the loss.
- Given the same cost and the same benefit, no one is more likely than the other to go ahead to watch the movie.

More exemplars



Ongoing developments

• Revised template for marking assignments

Embed descriptors into the marking form to aid assessors

- Focus on the core areas to arrive at scoring decisions
- Let students know the criteria being assessed in grading
- Facilitate feedback aligned with the rubric and achieve consistency
- Support students' uptake of feedback

Written assignment:				
Written assignment* (30=15% of total)	Excellent	Satisfactory	Barely Satisfactory	Unsatisfactory
Accuracy** (15) (covering all correct answers without previous mistakes)	 All concepts integrated Extensive reading effort Deep reflection All feedback applied Remarks: Many major concepts a 	 Partial concepts integrated Some reading effort Developing reflection Most feedback applied are explained in details but deeper 	 Few concepts integrated Limited reading effort Superficial reflection Few feedback applied reflection can be done. 	 Inaccurate knowledge Lacks reading effort No reflection No feedback applied
Substance (5) (elaborated well with necessary details)	 Details fully elaborated All information included Remarks: 	 Details mostly elaborated Most information included 	 Details partially elaborated Few necessary information 	 Details lack elaboration Missing information
Structure (5) (with well-organized, logical flow in writing)	 Strong logical organization Coherent, unified and effective transition Remarks: The ideas could be better 	 Logically organized Coherent transition ter connected in a more unified was 	 Mostly organized Lacks effective transition 	 Lacks logical organization Lacks transition at all

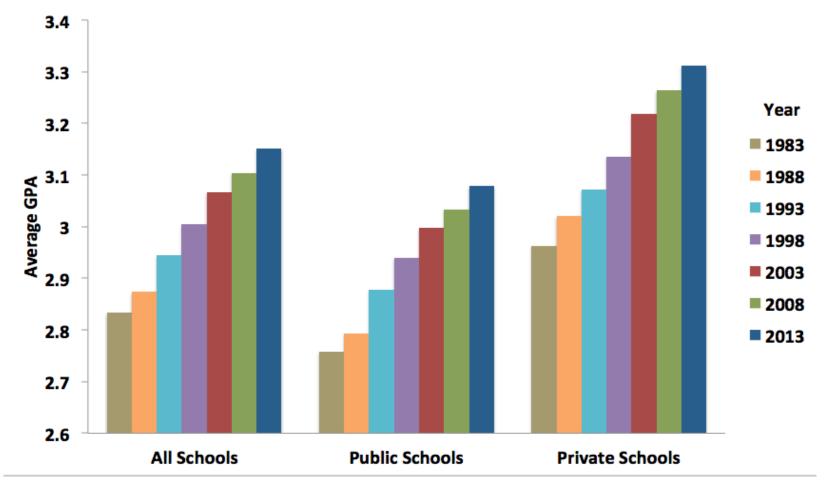


Ongoing developments

- Revised moderation procedures to further improve consistency in assessment and grading standards
 - Co-marking selected student works
 - Compare Hi-, Mid-, Lo- graded assignments among tutors to create common understanding by impression



Recent GPA Trends Nationwide Four-Year Colleges & Universities







Moderation of Assessment

Assessment

- Assessment based upon the quality of the achievement of learning outcomes
- Marking rubrics with clearly defined performance standards used to assess the quality of achievement of learning outcomes
- Problem is: variation in standards across institution, programs and subjects with individually developed marking rubrics



Moderation of assessment based upon quality of achievement of learning outcomes – not norm-referenced adjustments of grade distributions.

To try to ensure consistency of standards – align marking rubrics with external standards – **Grade Descriptors**

Moderation of grading aims to ensure consistency of standards across:

- assessment items,
- subjects and
- programs

by comparing and aligning marking rubrics with external standard – Institutional Subject Level Grading Descriptors (ISLGD)



Stages in Moderation of Assessment

Stage 1:

Moderation of Major Assessment Tasks within a subject

Stage 2:

Moderation of Marking and Grading (within a subject)

Stage 3:

Moderation of Marks and Grades (across subjects within a program)



Stage 1:

Moderation of Major Assessment Tasks within a subject

Subject Leader and teaching team need to ensure through peer review:

- Alignment of assessment tasks with ILOs
- Clarity of assessment tasks
- Appropriate standards or challenges of assessment tasks
- Clarity of the marking rubrics (criteria and standards)
- Standards of marking rubrics guided by ISLGD
- Guidance for assessors in terms of the interpretation of criteria and standards
- Workload in marking assessment items not excessive

All this to be achieved by the Subject Leader with the support of peer review of above by teaching team



Stage 2: Moderation of Marking and Grading (within a subject)

- Training of markers by a marking exercise prior to the main marking phase
- Moderation of marking by Subject Leader reviewing a sample of marked work ensuring marking is consistent and in line with criteria and standards detailed in marking rubrics
- If discrepancies identified, then after discussion with the marker if:
 - marking consistently too high or too low in reference to the marking rubrics and ISLGD, marks should be adjusted systematic error
 - if marking is inconsistent (some too high, others too low) then double or remarking is required random error



Stage 3:

Moderation of Marks and Grades (across subjects within a program)

- SARP reviews distribution of results across subjects
- If distribution of marks and grades is higher or lower compared to other subjects – further moderation is required
- The marking rubrics and their application to Major Assessment Items need to be reviewed and if found to be appropriate, then marks and/or grades should stand; if not, then rescaling may be justified.
- Scaling of marks and adjustment of grades will ONLY be justified in relation to the setting and implementation of criteria and standards (marking rubrics, structure of items)
- Scaling of marks and adjustment of grades will NOT be justified to align distribution of marks and grades with a pre-determined norm



- Educational Development Centre
- Finally, SARP provides firm justification to Board of Examiners of adjustments or scaling by reference to criteria and standards (not norms):

In documenting the case for rescaling, the SARP should record:

- The reasons for rescaling students mark and/or grades
- The evidence upon which the reasons were justified (criteria and standards, not norms)
- The method of adjustments or rescaling
- Comparison of the original and rescaled marks and/or grades
- How the issue will be rectified in the future.





Rubrics and eLearning Tool

- Reduce logistics and save time
- Communicate the results to students easily
- Share among teachers



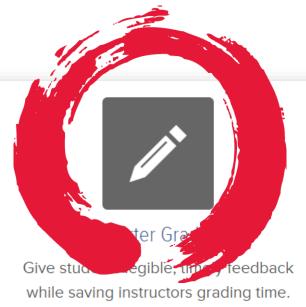
Turnitin GradeMark

- Evaluation and assessment tool
- Online, Green, LMS integrated



Ensure Originality

Check students' work for potential plagiarism by comparing it against the world's largest comparison database.





Streamline Peer Reviews

Simplify one of the most valuable--yet cumbersome--feedback processes.



GradeMark

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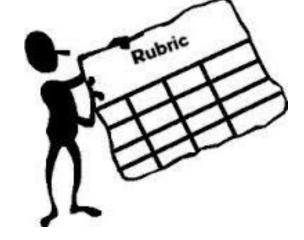








Summary





Educational

Development Centre

Create rubrics in GradeMark

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Use rubrics in GradeMark

Conventions			10%			•	
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Persuasive	Writing Task	15%	Addresses only one part of the writing task.	Addresses only parts of the writing task.	Addresses all parts of the writing task.	Clearly addresses all parts of the writing task.	
Rubric score	Organization	20%	May provide a weak, if any, thesis; demonstrates little or no consistency of tone and focus; and illustrates little or no control of organization.	May provide a thesis, demonstrates an inconsistent tone and focus and illustrates little, if any, control of organization.	Provides a thesis, demonstrates a consistent tone and focus, and illustrates a control of organization.	Provides a meaningful thesis, demonstrates a consistent tone and focus, and illustrates a numosoful control of organiz:	
Persuasive	Support	15%	Fails to support ideas with details and/or examples.	May support the thesis and main ideas with limited, if any, details and/or examples.	Supports the thesis and main ideas with details and examples.	Thoughtfully supp main ideas with spectrum of the spectrum of	explanation is needed Associate a criterion Writing Task
10 - NULL States and maintai defends that position evidence and convict concerns, biases, a	Sent. Variety	10%	May provide no sentence variety and uses limited vocabulary.	Provides few, if any, types of sentence types, and basic, predictable language.	Provides a variety of sentence types and uses some descriptive language.	Provides a variety and uses precise, language.	Organization Support Sent. Variety Audience
Apply ru	Audience	10%	May demonstrate no sense of audience.	Demonstrates little or no sense of audience.	Demonstrates a general sense of audience.	Demonstrates a c audience.	Conventions Persuasive





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Need more help?

- EDC workshops
- Individual consultations <u>laura.zhou@polyu.edu.hk</u>





Project Website by the Working Group on Subject Quality Assurance (WGSQA) – *under development*

URL - <u>https://wwwdevnew.polyu.edu.hk/wgsqa/</u>



Institutional Level Subject Grading Descriptors (ILSGD)

URL -

https://wwwdevnew.polyu.edu.hk/wgsqa/images/cont ent/Draft PolyU Institutional Subject Grading Descri ptors.pdf

Rubrics Manual

URL -

ILSGD >

https://wwwdevnew.polyu.edu.hk/wgsqa/images/co ntent/WGSQA_Rubrics_Manual_Ver.1_2019409.pdf

Note: Above links are only assessable by PolyU staff; PolyU VPN required if off-campus.



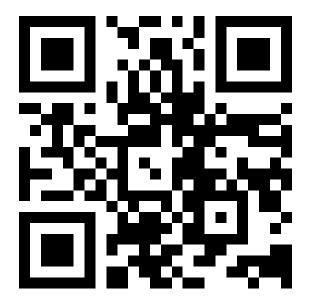
< Rubrics Manual (Draft)



https://qrgo.page.link/Hjdx

Thank you!





Participants' Feedback Questionnaire