Using Vivas as UG assessments
A case study using a core module

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The Changing Landscape of Higher Education Assessment

- Traditional assessments (exams, essays, and standardized tests) focus on memorization and narrow metrics.
- Modern demands prioritize:
  - Adaptability
  - Critical thinking
  - Real-world skills (Wiggins, 1998).
- Graduate employability is now a key metric in UK higher education, surpassing traditional measures like:
  - National Student Survey (NSS)
  - Research Excellence Framework (REF)
- The Graduate Outcomes Survey (GOS) influences university rankings and reputations.

Innovative and Inclusive Assessment Approaches

- The need to rethink assessments recognizes:
  - Diverse learning styles, experiences, and career paths (Biggs & Tang, 2011).
- Innovative methods include:
  - Project-based learning
  - Peer evaluation
  - Reflective practices (Sambell et al., 2013)
- Prioritizing authenticity and relevance fosters:
  - Collaboration
  - Problem-solving
  - Adaptability (Herrington & Herrington, 2006)

Historical Context of Viva Voce Assessments

- Originated in medieval universities like Bologna and Paris (Verger, 1992).
- Focused on verbal reasoning and critical thinking through public debates.
- Continued in Oxford and Cambridge, emphasizing dialogue and inquiry (Clark, 2006; Jaeger, 1945).
- Shifted to written exams in the 19th century for scalability but retained importance in doctoral programs and professional qualifications (Anderson, 2004; Mullins & Kiley, 2002).

Benefits of Viva Voce in Undergraduate Education

- Enhances intellectual engagement, critical thinking, and communication skills (Denicolo, 2003).
- Real-time feedback helps address areas for improvement (Aricò, 2021).
- Example: History of Economic Thought module at the University of East Anglia.
  - Improved subject mastery and articulation skills.
  - Challenges: Preparation demands, anxiety, and scalability.

Innovative Use in Mathematics Education

- Encourages deeper learning, immediate feedback, and reasoning articulation (Iannone & Simpson, 2015).
- Students preferred oral assessments for demonstrating problem-solving processes.
- Challenges:
  - Anxiety about oral formats.
  - Concerns about subjective grading.
- Clear criteria and preparation mitigate these issues.

Linking Viva Voce to Employability and Academic Integrity

- Develops communication, adaptability, and problem-solving skills valued in the workplace (Denicolo, 2003; Mullins & Kiley, 2002).
- Simulates real-world scenarios like professional dialogue and client interaction.
- Addresses challenges posed by generative AI, ensuring authenticity and spontaneity (Pearce & Chiavaroli, 2023).

Challenges and Recommendations for Implementation

- Challenges:
  - Time-intensive for large undergraduate cohorts.
  - Potential disadvantages for students with speech anxiety or neurodivergence (Knight, 2002).
- Recommendations:
  - Inclusive strategies: Alternative formats and accommodations.
  - Use oral assessments as part of a portfolio for a holistic evaluation.
  - Faculty training and institutional support to scale implementation effectively.

Design and mapping

- Module learning outcomes (MLOs) $\rightarrow$ assessment criteria (rubric)
- Assessment criteria $\rightarrow$ question design
- Question design $\rightarrow$ assessment support (seminar design)

MLOs

LO.1 Demonstrate an in-depth understanding of microeconomic modelling;

LO.2 Assess existing and potential economic policies by relating them to relevant microeconomic theories and models;

LO.3 Critically analyse economic problems by making systematic and clear predictions and interpretations based on theoretical constructs;

LO.4 Apply advanced mathematical skills to formalise concepts pertaining to general equilibrium and social welfare and derive the relevant theorems.

Assessment criteria

AC.1 Demonstration of a thorough understanding of key microeconomic models and their application;

AC.2 Ability to derive and explain mathematical concepts related to key microeconomic models;

AC.3 Ability to critically assess a given economic policy using relevant microeconomic theories;

AC.4 Ability to critically reflect on limitations of models, identify unintended consequences, and offer alternative approaches;

AC.5 Clarity and logical structure of the answers, including the ability to communicate complex ideas concisely and effectively.

Mapping of MLOs to criterion 1

AC.1: Demonstration of a thorough understanding of key microeconomic models and their application.

LO.1: Demonstrate an in-depth understanding of microeconomic modelling.

Alignment: This criterion evaluates whether the student shows a thorough understanding of key models, which aligns directly with the aim of LO.1.

LO.2: Assess existing and potential economic policies by relating them to relevant microeconomic theories and models.

Alignment: Applying microeconomic models to policy assessment requires understanding the models thoroughly, which supports LO.2.

Mapping of MLOs to criterion 2

AC.2: Ability to derive and explain mathematical concepts related to key microeconomic models.

> *LO.4: Apply advanced mathematical skills to formalise concepts pertaining to general equilibrium and social welfare and derive the relevant theorems.*
>
> **Alignment:** This criterion explicitly connects to LO.4s focus on mathematical formalisation of microeconomic concepts.
>
> *LO.1: Demonstrate an in-depth understanding of microeconomic modelling.*
>
> **Alignment:** Mathematical derivations require foundational understanding of the models, as specified in LO.1.

Mapping of MLOs to criterion 3

AC.3: Ability to critically assess a given economic policy using relevant microeconomic theories.

LO.2: Assess existing and potential economic policies by relating them to relevant microeconomic theories and models.

Alignment: LO.2 directly supports this criterion by focusing on policy assessment using microeconomic theories.

LO.3: Critically analyse economic problems by making systematic and clear predictions and interpretations based on theoretical constructs.

Alignment: Assessment of policies also involves critical analysis, which ties directly to LO.3.

Mapping of MLOs to criterion 4

AC.4: Ability to critically reflect on limitations of models, identify unintended consequences, and offer alternative approaches.

LO.3: Critically analyse economic problems by making systematic and clear predictions and interpretations based on theoretical constructs.

Alignment: This learning outcome focuses on critical analysis, which includes evaluating limitations and proposing alternatives.

LO.2: Assess existing and potential economic policies by relating them to relevant microeconomic theories and models.

Alignment: Understanding the limitations of applying microeconomic models to policy aligns with this criterion.

Mapping of MLOs to criterion 5

AC.5: Clarity and logical structure of the answers, including the ability to communicate complex ideas concisely and effectively.

LO.1: Demonstrate an in-depth understanding of microeconomic modelling.

Alignment: Communicating an understanding of microeconomic models requires clarity and logical structure.

LO.3: Critically analyse economic problems by making systematic and clear predictions and interpretations based on theoretical constructs.

Alignment: Logical structure and clarity are essential for presenting analysis and interpretations.

LO.4: Apply advanced mathematical skills to formalise concepts pertaining to general equilibrium and social welfare and derive the relevant theorems.

Alignment: Presenting mathematical derivations effectively requires clear communication.

Question design

Q1 **Opening question:** You will be asked to explain and discuss a key microeconomic model or theorem relevant to the topics covered in the module. You are expected to demonstrate and/or elaborate on mathematical reasoning and clearly explain how the model applies to individual decision-making or market outcomes.

Q2 **Policy application:** You will be presented with a hypothetical economic policy or market intervention. You are expected to assess this policy using relevant microeconomic theories and explain potential impacts on market efficiency and social welfare.

Q3 **Critical reflection:** You will be asked to reflect on the limitations of the models or policies discussed, considering real-world implications and potential unintended consequences. This section will evaluate your ability to critique and offer alternative approaches based on your understanding of microeconomic theory

Mapping of ACs to the opening question

Focus: Explain and discuss a key microeconomic model or theorem, elaborate on mathematical reasoning, and its application to individual decision-making or market outcomes.

AC.1: Demonstration of a thorough understanding of key microeconomic models and their application.

Alignment: This question directly evaluates the ability to explain and apply a microeconomic model to real-world scenarios.

AC.2: Ability to derive and explain mathematical concepts related to key microeconomic models.

Alignment: The question explicitly asks for mathematical reasoning related to the model or theorem.

AC.5: Clarity and logical structure of the answers, including the ability to communicate complex ideas concisely and effectively.

Alignment: Clear explanation of the model and its mathematical reasoning is essential.

Mapping of ACs to the policy application

Focus: Assess a hypothetical economic policy using relevant microeconomic theories and explain its potential impact on market efficiency and social welfare.

AC.1: Demonstration of a thorough understanding of key microeconomic models and their application.

Alignment: Applying microeconomic models to policy analysis requires a deep understanding of the models.

AC.3: Ability to critically assess a given economic policy using relevant microeconomic theories.

Alignment: This question explicitly evaluates the ability to analyse policies using microeconomic theories.

AC.5: Clarity and logical structure of the answers, including the ability to communicate complex ideas concisely and effectively.

Alignment: Communicating policy analysis effectively is critical for this question.

Mapping of ACs to the critical reflection

Focus: Reflect on the limitations of models or policies discussed, considering real-world implications and potential unintended consequences, and propose alternative approaches.

AC.4: Ability to critically reflect on limitations of models, identify unintended consequences, and offer alternative approaches.

Alignment: This section is specifically designed to test critical reflection on models and policies.

AC.3: Ability to critically assess a given economic policy using relevant microeconomic theories.

Alignment: Real-world implications and unintended consequences tie directly to policy assessment.

AC.5: Clarity and logical structure of the answers, including the ability to communicate complex ideas concisely and effectively.

Alignment: Clearly articulating critiques and alternatives is necessary in this this question.

Assessment support design

For all cases below, the students received information on the session activity and potential questions beforehand, while actual instructions and guidelines were distributed during the session to encourage engagement and attendance. To make sure we had a hand-on approach we limited group size to 10 students, and ran 8 groups for a total number of 74 students.

AS1 Mock evaluative conversations

AS2 Peer-led socratic dialogues

AS3 Content mapping

AS4 Mechanism and constitution design

To give you some inspiration, we will present the design of the first two support sessions.

Mock evaluative conversations

The students are paired and each received a unique sheet including an opening , policy application, and critical reflection questions. They took turns in the role-play being assessor and the student. The sheets included

- Question
  1. Prompt for the main question
  2. Follow-up prompts
  3. Nudges
- Benchmark answer

Mock evaluative conversations - example

The students are paired and each received a unique sheet including an opening, policy application, and critical reflection questions. They took turns in the role-play being assessor and the student. The sheets included

- Question: Explain the concept of utility maximisation under a budget constraint. How does the Walrasian demand function reflect a consumers optimal consumption choices?
  1. Prompt for the main question: Prompt the respondent to outline the utility maximisation problem, state its assumptions, and explain the objective function and constraints.
  2. Follow-up prompts:
     1. Can you set up the Lagrangian for this problem and explain its components?
     2. What do the first-order conditions imply about the relationship between marginal utility and prices?
  3. Nudges: Think about the marginal rate of substitution and how it equals the ratio of prices.

Peer-led socratic dialogues

The students are paired and each received a unique sheet, which provided the role-playing rules for the instructor and student.

- **Instructor role-playing student:** Focus on asking probing questions, encouraging the peer to explain concepts step by step. If the peer struggles, guide them with smaller, simpler questions that build up to the final answer.
- **Answering student:** Aim to think aloud and work through the questions logically. If stuck, try to explain any partial understanding and build upon it with hints from the instructor.

Peer-led socratic dialogues - example

Question: What is the relationship between utility maximisation and expenditure minimisation?

Suggested Follow-Up Questions:

1. What does it mean to maximise utility for a consumer?
2. What constraints does a consumer face when trying to maximise utility?
3. How would the consumers problem change if their goal were to minimise spending instead?
4. Can you explain how solving the expenditure minimisation problem gives the same result as solving the utility maximisation problem?
5. Why is it useful to look at these problems from both perspectives?

Goal for the "Instructor"

To guide their peer to explain how the primal and dual problems are two sides of the same coin in consumer theory.

Viva Structure and Marking

Structure:

- **Opening Question (5 min)**: Explain key microeconomic models.
- **Policy Application (5 min)**: Assess economic policies using theory.
- **Critical Reflection (5 min)**: Evaluate limitations and real-world implications.

Rubric:

- Five criteria (20% each): understanding, application, critical thinking, reflection, and communication.

Opening Question (5 min)

Example

- Explain the difference between choice-based approach and preference-based approach.
- Explain how envelope theorem can be applied to understand the impact of policy changes on consumer utility or firm profits?
- Explain how price distortions impact consumer and producer efficiency, and what methods we can use to measure the resulting welfare loss.
- Explain why insurance companies cannot exist if consumers have linear or convex utility functions.
- If workers could choose between a separating and pooling equilibrium in the Spence model, which one would they choose?
- Explain the role of concave utility functions in the moral hazard model.

Policy Application (5 min)

Example

- How can the properties of Walrasian demand be applied to evaluate the effectiveness of a universal basic income policy in improving consumer welfare?
- Using the Slutsky wealth compensation principle, analyse the impact of an increase in fuel taxes on household consumption patterns.
- Explain why consumers browsers histories are a tradeable good in the presence of incomplete information about characteristics. 8. Discuss the consequences of introducing an opt-out option from the NHS.
- The UK media has recently drawn attention to prevalence of the so called "Mickey Mouse degrees", by using the signalling model, comment about the welfare consequences of these degrees.
- Comment how performance-based bonus are a response to the moral hazard problem present in the labour market.

Critical Reflection (5 min)

Example

- Critique the assumption of homotheticity in utility functions when analysing the effects of tax policies on consumption patterns across different income groups.
- How does the assumption of homogeneity of degree zero in Walrasian demand restrict its application to real-world policies involving variable income distributions?
- What are the limitations of Arrow's requirements in addressing real-world social choice problems?
- Comment on the minimum amount of information required to compute the second-best contracts. In real live how likely is to have access to that information.
- Comment on the assumption that costly signals do not affect the individual characteristics.
- Discuss the limitations of using participation constraint for public policy design.

Challenges and Considerations

- **Equity and Inclusivity**: Supporting students with anxiety or neurodivergence.
- **Scalability**: Adapting oral assessments for large cohorts.
- **Practical Barriers**: Time-intensive setup and evaluation.
- **Recommendations**: Use mock exams, clear rubrics, and complementary methods.