Innovative techniques for student assessments

Presenters:

Neha Batura, Femi Ayadi & Frikkie Booysen

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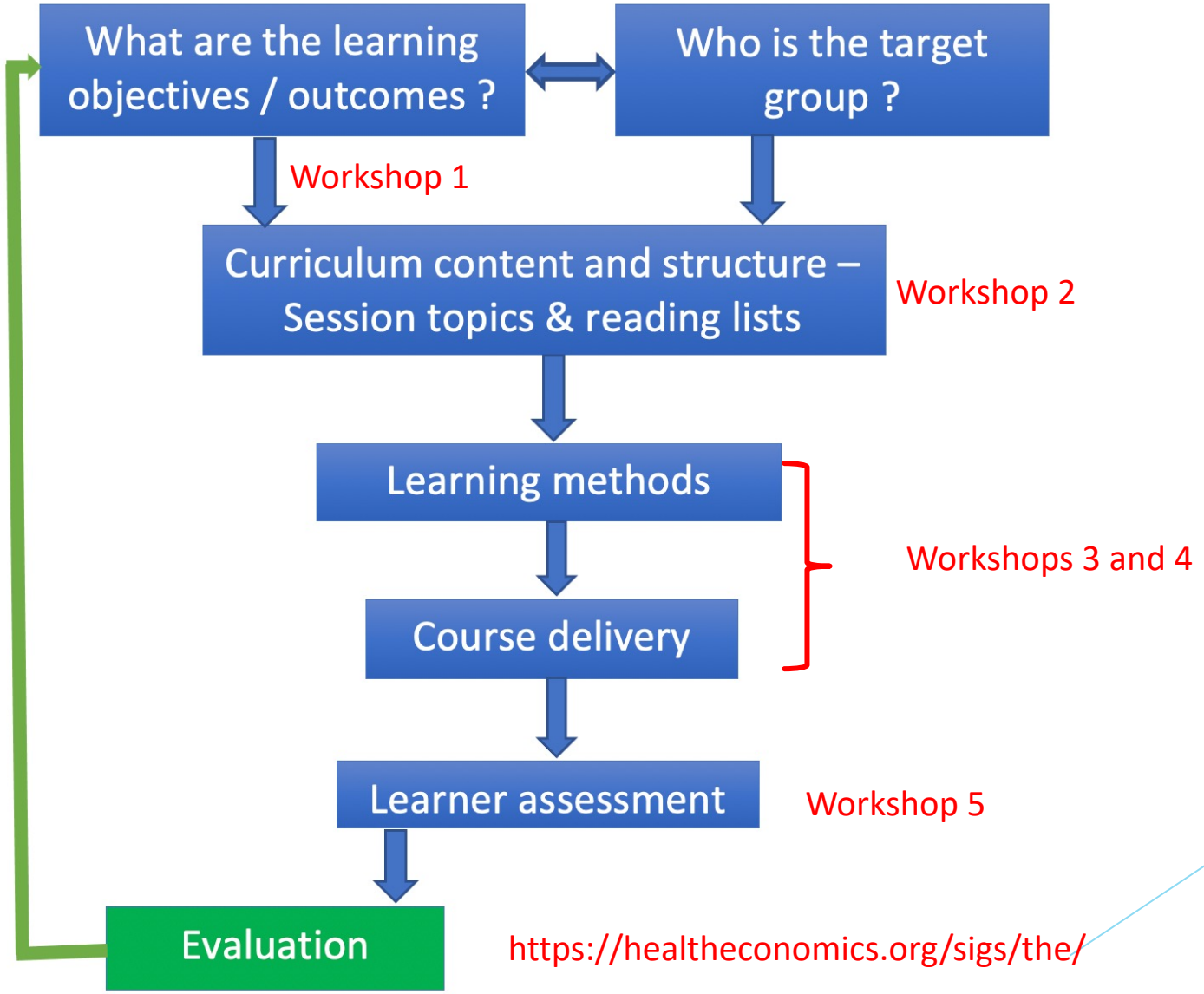
Course development and implementation



https://healtheconomics.org/sigs/the/

IHEA INTERNATIONAL HEALTH ECONOMICS ASSOCIATION

With thanks to Andrew Green

Neha Batura

- Assoc. Prof. in Health Economics at University College London Institute for Global Health
- Leads MSc in Health Economics and Decision Science
- Designing & delivering modules on microeconomics and econometrics

Femi Ayadi

- Professor of Healthcare Administration at University of Houston Clear Lake
- Coordinator of the Healthcare Administration internship program
- Teaches courses in healthcare finance & health economics

Frikkie Booysen

- Professor of Health Economics at University of the Witwatersrand
- Postgraduate health economics teaching
- Using reflective essays and portfolios as assessment tool in courses & undertaking research on this

Continuous Assessments Techniques: Pre and Post Quizzes

M. Femi Ayadi, PhD

University of Houston-Clear Lake

Background and Rationale

- Course Structure: 16-week (undergraduate) or 8-week (graduate) semester.
- Audience: non-econ majors, healthcare administration students in a business school
- Mostly work full time
  - *Class time 4-6:50p.m. or 7-9:50 pm (Once a week)*
- Desperately needed something to incentivize my students to engage with the material before class.
  - Flipped classroom
  - Shift from making midterms and finals a significant piece of the grade

WHAT IS FLIPPED LEARNING?

- Flipped learning is a pedagogical approach in which **first contact** with new concepts moves from the **group learning space** to the individual learning space in the form of **structured activity**, and the resulting group space is transformed into a **dynamic, interactive learning environment** where the **educator guides** students as they **apply** concepts and engage creatively in the subject matter (Flipped Learning Network, 2014)

✓1st Contact with material is outside class time
✓Frees up time in Group Space
✓Role of Professor – Guide
✓Group space used for applying

FORMATIVE Versus SUMMATIVE ASSESSMENT

Formative Assessment
Assessment procedures conducted by teachers during the learning process in order to modify teaching and learning activities to improve student attainment

- **Low stakes quizzes**
- **Places higher emphasis on learning process**

Summative Assessment:
The goal of **summative assessment** is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.

- Often high stakes, which means that they have a high point value.
- Examples include: a midterm exam, final exam or project.

COURSE DELIVERY

Face-to-Face, Flipped Learning

- All course materials reside in LMS (*Blackboard*)
- Guided Practice Framework (*Talbert, 2017*)
  - Used to list both basic and advanced Learning Objectives for each week
- Weekly Pre-Class Assignment
- **Pre-quiz** to assess learning (*Socrative.com*)
  - Attendance, knowledge check
- One or two short micro-lectures to teach concepts for the day (15-20 minutes each)
  - Emphasis will depend on the results of pre-quiz
- Group activity to apply concepts taught (10 minutes)
- **Post-quiz** to assess learning (*Socrative.com*)

Class Grade Structure :

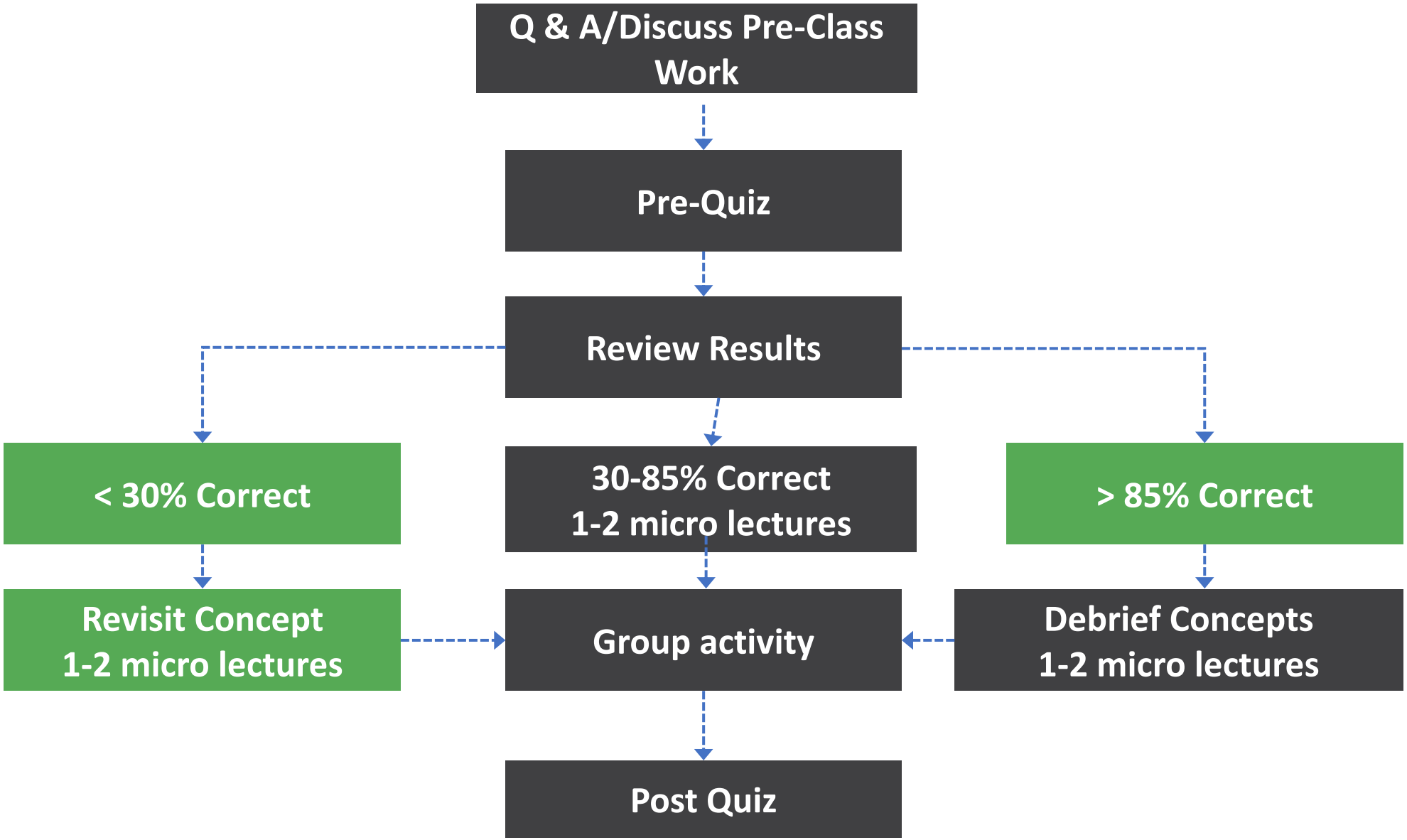
• Pre-Class Assignment	15%
• Pre-quiz (attendance)	10%
• Post-quiz	15%
• Midterm	20%
• Article Reviews	15%
• Final exam	25%

Note: both midterm and final constitute less than 50% of overall grades and that is deliberate

Weekly Continuous Assessments

- **Weekly Pre-class assignment**:
  - *to be turned in before class period*
  - *Grade for completion and not for content*
- ***Pre-quiz:***
  - Each class period starts with a 3-4 question pre-quiz
  - *Use your own device: (laptop or phone)*
  - *I quickly check the proportion that gets each question correct*
  - *That determines how much emphasis I give in my quick micro-lectures*
- ***Post-quiz**:*
  - *Similar or same 3-4 questions as pre-quiz*
  - *Let the class know what proportion of class got the question correct in pre-quiz*
  - *Goal is for 100% (or close) correct response for each question*
  - *Show class proportion that got each correct in post quiz*
    - *to check improvement in knowledge (assess learning)*

IN-CLASS


Q & A/Discuss Pre-Class Work
Pre-Quiz
Review Results
< 30% Correct
30-85% Correct
1-2 micro lectures
> 85% Correct
Revisit Concept
1-2 micro lectures
Group activity
Debrief Concepts
1-2 micro lectures
Post Quiz

Pre-Class Assignment: Week 3-Elasticity

- The price of a good rises from $4 to $6, and the quantity demanded falls from 120 to 80 units. Calculate the price elasticity of demand.

- Studies indicate that the price elasticity of demand for cigarettes is about -0.2. If a pack of cigarettes currently costs $4, and the government wants to reduce smoking by 25 percent, by how much should it increase the price?

- Studies also find that teenagers have a higher price elasticity of demand than adults. Why might this be true?

socrative

Name _____
Date _____

Week 3 Quiz

Score _____

1. The price elasticity of demand is -0.20. Demand is:

(A) Elastic

(B) Inelastic

(C) Unit elastic

(D) none of the above

2. Most estimates of the income elasticity imply that consumption of medical products increases with income

(T) True

(F) False

3. A good with many close substitutes will likely to have relative _____demand, since consumers can easily choose to purchase one of the close substitutes if the price of the good increases

(A) fairly good

(B) Inelastic

(C) Elastic

(D) Price

4. The percentage change in the quantity demanded associated with a 1 percent change in the price of a related product is the

(A) Price elasticity

(B) cross-price elasticity

(C) income elasticity

(D) arc elasticity

(E) arc income elasticity

5. The demand for medical care is usually inelastic because

(A) consumers have excellent information about costs and benefits of care

(B) consumers perceive that there are few good substitutes for medical care

(C) demand is unaffected by changes in price

(D) all of the above

1. FORMATIVE ASSESSMENT

PRE QUIZ

Show Names Show Answers

Score (%)	#1	#2	#3	#4
100%	D	B	C	C
100%	D	B	C	C
100%	D	B	C	C
50%	D	B	A	B
100%	D	B	C	C
25%	A	B	A	D
75%	D	B	D	C
100%	D	B	C	C
75%	D	B	A	C
75%	D	B	A	C
75%	D	B	C	B
75%	D	B	A	C
50%	D	B	B	A
50%	D	D	A	C
100%	D	B	C	C
50%	D	B	D	B

POST QUIZ

Show Names Show Answers

Name	Score (%)	#1	#2	#3	#4
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	75%	D	B	C	A
*****	100%	D	B	A	A
*****	75%	A	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	50%	D	B	C	C
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A
*****	100%	D	B	A	A

Questions

Thank you!

M. Femi Ayadi
ayadim@uhcl.edu

Free to Learn: The Use of Free and Reflective Writing in Teaching Health Economics

Frikkie Booysen

iHEA webinar
18 November 2022

University of the Witwatersrand, Johannesburg

Laura Dison
Agata MacGregor
Greig Krull
Pia Lamberti

Theory

What is reflective writing and why is it useful?

Practice

How did I implement free and reflective writing?

Assessment

How did I assess students' reflective writing?

Reflection

What lessons did I learn and what are some future directions?

Reflection:

"active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1910: 6 as cited in Lay & McGuire, 2010), which if '**critical**' also challenges assumptions and analyse power relationships (Brookfield, 1995 as cited in Lay & McGuire, 2010)

Reflexivity:

"a critical approach to professional practice that questions how knowledge is generated and, further, how relations of power influence the processes of knowledge generation" (D'Cruz, Gillingham & Melendez, 2007)

Free writing:

Focused freewriting, in the simplest terms, refers to the "act of writing quickly for a set time from ten to fifteen minutes, just putting down whatever is in the mind, without pausing and worrying about what words to use, and without going back to modify what has been written" (Elbow, 1998: 3)

Reflective writing:

"More than writing organically about what one thinks, reflection involves complex introspective and metacognitive, individual and social processes that also draw on critical thinking and self-assessment" (Ramlal & Augustin, 2020: 519)

Reflective writing and reflexivity: Benefits

Reflective writing predicts academic performance, but more importantly, supports:

- Communicative competencies
- Critical thinking
- Active learning
- Deep learning
- Metacognition
- Life-long learning

assessment **FOR** learning

Sources: Allan & Driscoll (2014); Edwards, Ranson & Strain (2002); Kathpalia & Heah (2008); Olaughlin & Griffith (2020); Tsingos-Lucas et al. (2017); Woldt & Nenad (2021)

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… in Economics

Reflective assessment in Economics

- Brewer and Jozefowicz (2006) employed six **informal reflection papers** with participation credit to teach *Principles of Economics*
- Salim & Ruediger (2014) employed three 150-300 word **reflective writing assignments** in a *Principles of Macroeconomics* course: mixed statistical results regarding impact on exam performance
- Batura et al. (2021) uses portfolios, combined with a short **reflective commentary** on each of 10 learning units, as a **summative assessment** in the *Economic Evaluation in Health Care* (EEHC) module, which was positively received by students

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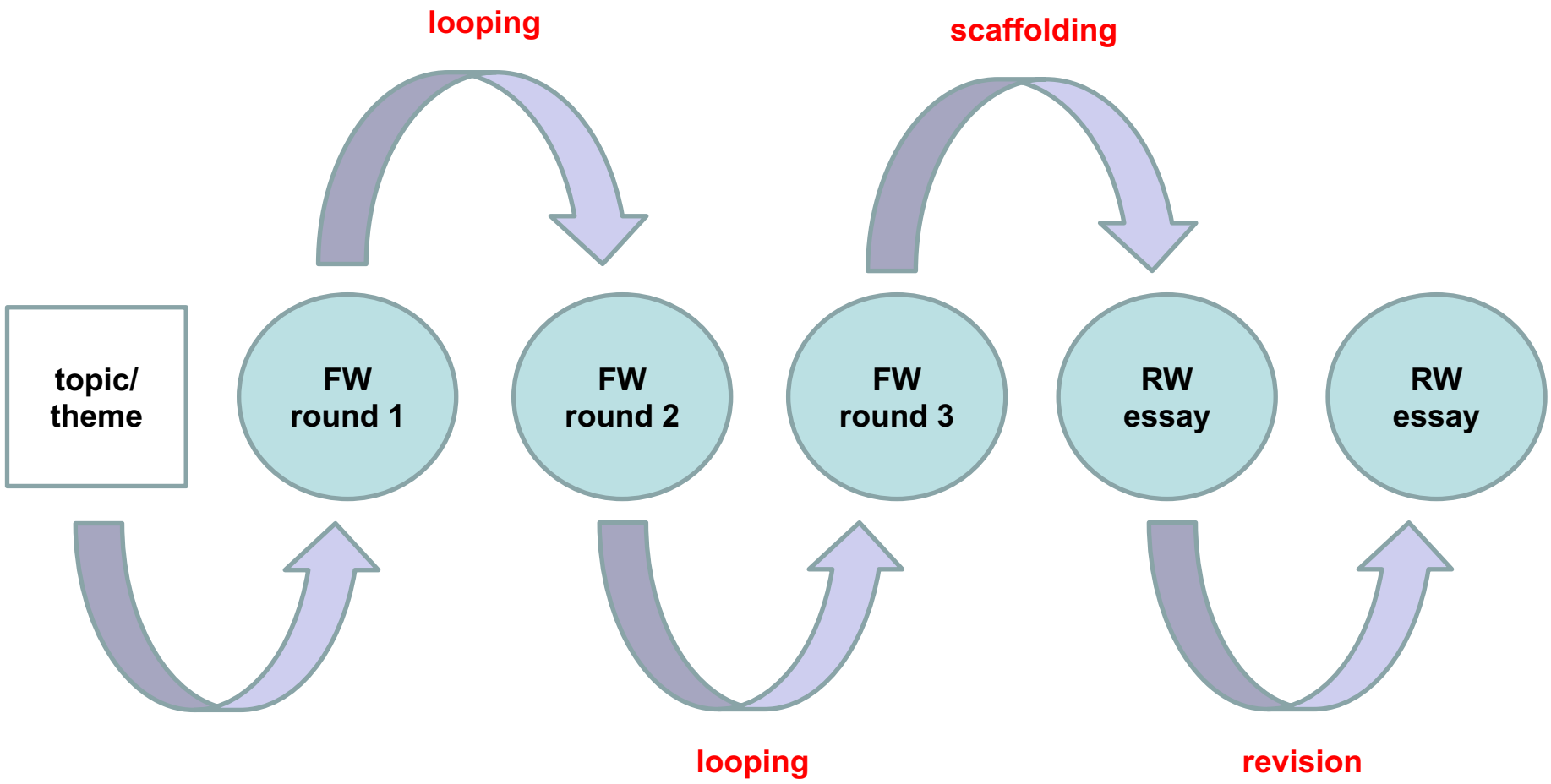
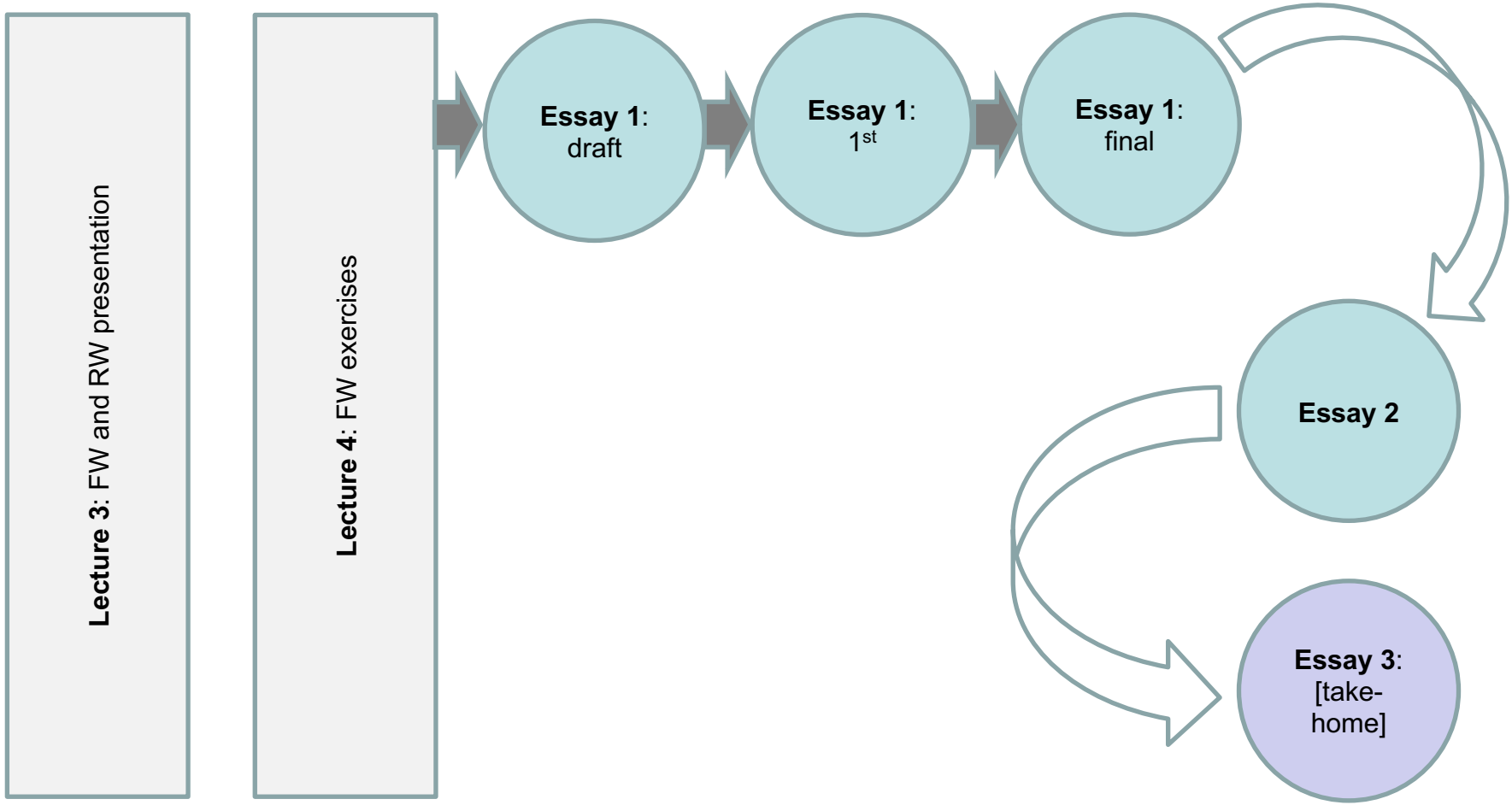
Free and reflective writing in ACTION: the reflective essay


looping
scaffolding
topic/ theme
FW round 1
FW round 2
FW round 3
RW essay
RW essay
looping
revision


Lecture 3: FW and RW presentation
Lecture 4: FW exercises
Essay 1: draft
Essay 1: 1st
Essay 1: final
Essay 2
Essay 3: [take-home]

Rubrics for reflective writing

- Assessment of reflective writing is particularly **challenging** and very different from conventional forms of assessment (Chan, Wong & Luo, 2021; Shum et al., 2016)

- Levels of reflection in learners generally are low or moderate and mainly only descriptive, but can be improved by using explanatory **rubrics** to guide the writing process (Cheng & Chan, 2019)

Assessment criteria:
Context [10]
Knowledge [20]
Reflection [40]
Personal growth [10]
Writing [20]

36-40 points
Reflection demonstrates a high degree of critical thinking in applying, analysing, and evaluating key course concepts and theories from course materials. Insightful and relevant connections are made through contextual explanations, inferences, and examples.

9-10 points
Conveys strong evidence of reflection on own work with a personal response to the self-assessment questions posed. Demonstrates significant personal growth and awareness of deeper meaning through inferences made, examples, well developed insights, and substantial depth in perceptions and challenges. Synthesizes current experience and explores its future implications.

Observations

- Some students revert to structured analytical writing focused on knowledge
- Restrictive word counts may limit reflection and reflexivity
- Level of feedback provided during formative and summative assessment
- Some topics lend themselves more to reflection than others

- Use of new assessment tools requires SOTL prior to implementation

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Future directions

- Low versus high stakes
- Provide exemplars
- Self-assessment
- Peer-assessment with feedback
- Learnings feed back into course and curriculum development
- Use in other (post-graduate) Economics courses

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Using Portfolios in Health Economics

Building Skills While Building the Assessment

Neha Batura

(n.batura@ucl.ac.uk)

With thanks to Hassan Haghparast-Bidgoli, Jane Hughes and Jolene Skordis

CENTRE FOR GLOBAL
HEALTH ECONOMICS

Overview

- What is a portfolio?
- Why portfolios?
- Course overview - Economic Evaluation in Health Care
- Portfolio in action
- Portfolio evaluation
- Conclusion

What is a portfolio?

"A professional development portfolio is a collection of material, made by a professional that records, and reflects on key events and processes in that professional's career."

(Hall, 1992, p. 81)

- Appropriate evidence of learning and achievement gathered, presented for review
- Developed to demonstrate overall progression or specific targets
- Can be integrally related to a personal/ professional learning plan
- Learner takes responsibility for creation, maintenance and appropriateness

Why portfolios?

- Recognize and encourage autonomous and reflective learning
- Rooted in student experience; enable links between theory and practice
- Accommodate evidence of learning from different contexts
- Allows for range of learning styles
- Assessed using declared framework with clear criteria and learning objectives
- Provide process for formative and summative assessment
- Provide model for lifelong learning and continuing professional development

Economic evaluation in health care (EEHC)

- Core module for MSc Health Economics and Decision Science
- Optional for MSc Global Health and Development + other UCL programs
- Introduces rationale, principles, methods for EEHC
- Focuses on main practical and theoretical issues related to EE
- Explores policy implications of using EE to guide decision making in health care
- Ensures that use of theory and methods is grounded in real-world applications

EEHC: course delivery

- Online lectures
- Practical exercises for each lecture or group of lectures with similar theme
  - Consolidate foundation or threshold learning concepts
  - Develop higher order learning and critical thinking
  - Deadline for each practical exercise
- Independent reading lists
- Online tutorials, journal clubs and discussion with online tutor feedback
- Summative assessment via portfolio

Portfolio in action: the task

Task

Compile the output from your 10 practical exercises into a single document – this is your portfolio. For the journal club and forum discussions, you will need to coherently summarise the questions posed and your considered responses. Do not forget to reference literature where appropriate. At the front of your portfolio, please write an Executive Summary of the contents. This summary should mention 1) what is contained in the document, 2) what you learned from the tasks overall, 3) explain which tasks were the most challenging, and finally, 4) reflect on how you might be able to apply these skills in the future.

For each of the ten exercises, you should submit what you posted onto Moodle as a starting point. However, this is also your chance to reflect on how your submissions might have been improved after you have had the benefit of looking at the solutions, readings, your classmates' responses to your discussion threads, or just your own subsequent growth. Beneath your 'submitted task' you are welcome to do some or all of the following:

1) Explain what you learned from the task
2) Outline what you would have done differently in retrospect and why, and what this might change in your findings or discussion.
3) Describe what you found challenging or stimulating about the task

This is what we refer to in the marking criteria, and below, as your 'reflection'.

- Highly structured
- Executive summary
- Include output from each practical with a reflective commentary
- Submitted via institutional virtual learning environment (Moodle)

Portfolio in action: structure

1. Executive Summary (600 words)
2. Practical 1
    a. Moodle submission
    b. Reflection (250 words)
3. Practical 2
    a. Moodle submission
    b. Reflection (250 words)
4. Practical 3
    a. Moodle submission
    b. Reflection (250 words)
5. Practical 4
    a. Moodle submission
    b. Reflection (250 words)
6. Practical 5
    a. Moodle submission
    b. Reflection (250 words)
7. Practical 6
    a. Moodle submission
    b. Reflection (250 words)
8. Practical 7
    a. Moodle submission
    b. Reflection (250 words)
9. Practical 8
    a. Moodle submission
    b. Reflection (250 words)
10. Practical 9
    a. Moodle submission
    b. Reflection (250 words)
11. Practical 10
    a. Moodle submission
    b. Reflection (250 words)

Portfolio in action: example reflection

3.2 Reflection (242/ 250 words)

In the exercise we assessed the cost from the health provided point of view, and to assessed the value of informal care (Ganapathy et al., 2015). The focus was on societal cost that entailed measurement of material (like inventory), staff, capital (used more than once/ live longer) involved.

I learned first to familiarize with the data set, the method of collection (relevant to study setting and outcome, is source of data collection relevant / up to date or does it contain all information etc.), and to think of different costs involved in costing process (direct cost (medical, nonmedical) and indirect cost (productivity and productivity losses, working vs leisure (Cooper and Rice, 1976), involuntary unemployment (Koopmanschap et al., 1995).
And account for variability in time, i.e. cost-items changes over time. (Dranove and Sloan, 1995, Drummond et al., 2001).

I learned that the societal perspective brings challenges in costing process, i.e. what cost to include, and how are they measured and valued, costed 'traded goods' and 'non-traded goods, assess quantity and value of these items (in terms of fixed cost, variable cost, and total cost) and consider average cost and marginal cost. I learned the estimated cost is never precise, converting future cost into current value (WHO recommendation of approximate range of 2% to 10% added) This is called sensitivity analysis.

I was challenged with the costing exercise, yet the theory was clear. In my calculation I didn't calculate caregivers cost and inflation cost.

Portfolio in action: assessment

- Individual mark assigned to the executive summary and practicals out of 100 (50% for submission, 50% for reflection).
- Final mark is average across components
- Clear marking guidelines for learners and tutors
- Formative tutor and peer feedback received on Moodle submission
- Summative assessment includes detailed feedback
- Marks range from distinction to fail levels

Percentage/ Category	General Criteria
80+ Exceptional	1. Calculations, discussion and reflection demonstrate an exceptional understanding of the decision context – consistently and clearly linking to the objectives, rationale and limitations of economic evaluations in health care. 2. Calculations and quantitative working have a logical structure throughout, correctly use all information and parameters provided (or use the information in a defensible way), offer outstanding discussion of the underlying assumptions and simplifications of the model where applicable, and explicitly consider how any assumptions/ simplifications affect the accuracy, reliability, applicability and generalisability of the findings. This category is differentiated from the previous category (70+) by high level of insight and innovation demonstrated 3. Discussion tasks and reflections demonstrate outstanding and relevant integration of theory and critical analysis. 4. Demonstrates an excellent understanding of how to deal with uncertainty in Economic Evaluation. Justifies the choice of any parameters or methods to deal with uncertainty (where appropriate), clearly highlighting implications for the findings and demonstrating critical thinking. 5. Shows an outstanding ability to present and interpret results and to identify the limitations and benefits of the analyses (either your own or those of other authors). 6. Takes a highly original and independent approach to discussing the implications of findings for future policy and research actions (where applicable), making appropriate use of course materials and readings. 7. Reflections on learning demonstrate an outstanding grasp of the learning objectives of the task, combined with a very high level of awareness about the student's own engagement with the activity.
70+ Excellent	1. Calculations, discussion and reflection demonstrate a very clear understanding of the decision context and consistently links it with the objectives, rationale and limitations of economic evaluations in health care. 2. Calculations and quantitative working have a logical structure throughout; correctly uses of all information and parameters provided (or uses the information in a defensible way); thorough discussion of the underlying assumptions and simplifications of the model - and how the assumptions/simplifications affect the accuracy, reliability, applicability and generalisability of the findings; 3. Discussion tasks and reflections demonstrate a consistent and relevant integration of theory and critical analysis;

Student perceptions

- Unanimously positive student feedback though challenging to compile
- Preferred portfolio where they were required to submit all practical exercises in one document, instead of choosing one to include
- Reduced stress relative to exams and essays
- Reflective nature provided insight into own learning trajectory and skills use in future career
- Importance of a clear instruction on
  - Content of portfolio
  - Level of reflection

Tutor experience

- Portfolio allowed tutors to gauge students' ability to:
  - Grasp theoretical concepts and apply them to tasks
  - Incorporate formative (peer and) tutor feedback and incorporate into the reflection
  - Develop argument and critically engage with the evidence based and current debates/ hot topics in EE
- Drop in Q&A sessions about course content and portfolio preparation as a consideration to different learning styles and backgrounds
- Marking load considerably less than exam scripts or essays
- Challenging as the portfolio is quite personal
- Provided key skills:
  - Developing arguments while engaging with relevant literature; Receiving and incorporating feedback; Critical appraisal of one's own work and that of others; and Writing concisely
- Gaining an understanding of the student learning trajectory

Conclusion

- Portfolios are about learning from reflection and thinking through how future practice can be improved as a result
- Quality > quantity
- Must be linked to clear learning objectives
- Beware of ‘pretty’ portfolios!
- Art, not a science (just like costing!)
- Extended to assess two other modules one applied, one theoretical