

# Teaching & Learning in the School of Physics & Astronomy

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PART 5:  
GUIDANCE FOR LAB  
DEMONSTRATING  
AND REFLECTING ON YOUR  
TEACHING



- PART 5A
  - Teaching in labs – structure and best practice
- PART 5B
  - Reflecting on your behaviour
- PART 5C
  - Reflecting on your teaching

REMEMBER ...

The

**CLASS AND LAB HEADS**

are the

**MOST IMPORTANT PEOPLE**

for you to contact with

**ANY QUESTIONS**

you have about your course/allocations!

# PART 5A: Teaching in labs

# Lab structure

- Majority of P&A courses have a practical component – teaching labs
- More so than any other – VERY course specific so in this context ...

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- Majority of P&A courses have a practical component – teaching labs
- More so than any other – VERY course specific so in this context ...
- “Demonstrators” – Academics, RFs, RAs, PhDs – everyone involved in running the lab.
- All supported by dedicated Teaching Technician Team
- Any lab session will have a team of demonstrators – as RAs you will likely be asked to take a leadership role.



# Demonstrator roles

- Answer student questions
- Provide feedback on progress
- Make sure everyone is working safely
- Help identify problems with equipment
- Assess the students' work.



Lab books/records  
Lab reports  
In class oral presentations  
Viva-like interviews

# Best practice for teaching in lab

- Big overlap here with small group teaching:
  - Organisation
  - Clarity
  - Knowledge and understanding
  - Dynamism and enthusiasm
  - Tutor-group/individual interaction
  
- Major difference though is that you need to keep an eye on WHAT they are doing.

# Providing feedback

- Whilst you do this in small group work, in the labs it takes on greater significance as lab work counts to a student's final grade.
- The feedback you give them must therefore
  - Be meaningful
  - Be understandable
  - Relate to the mark they are awarded.

# Providing useful feedback

- Traditional view of feedback is that teachers “transmit” feedback messages to students
  - This is wrong, this is right, doing this will make things better, etc etc
- Students then simply apply this feedback.
- But this teacher-centric model has many problems
  - Larger class sizes make it difficult to give personalised feedback
  - Assumes students understand the feedback
  - Doesn't allow for student motivation/beliefs
- We want to make students capable of self-regulation – give themselves feedback – good feedback from us can lead to this.

# Model for self-regulation

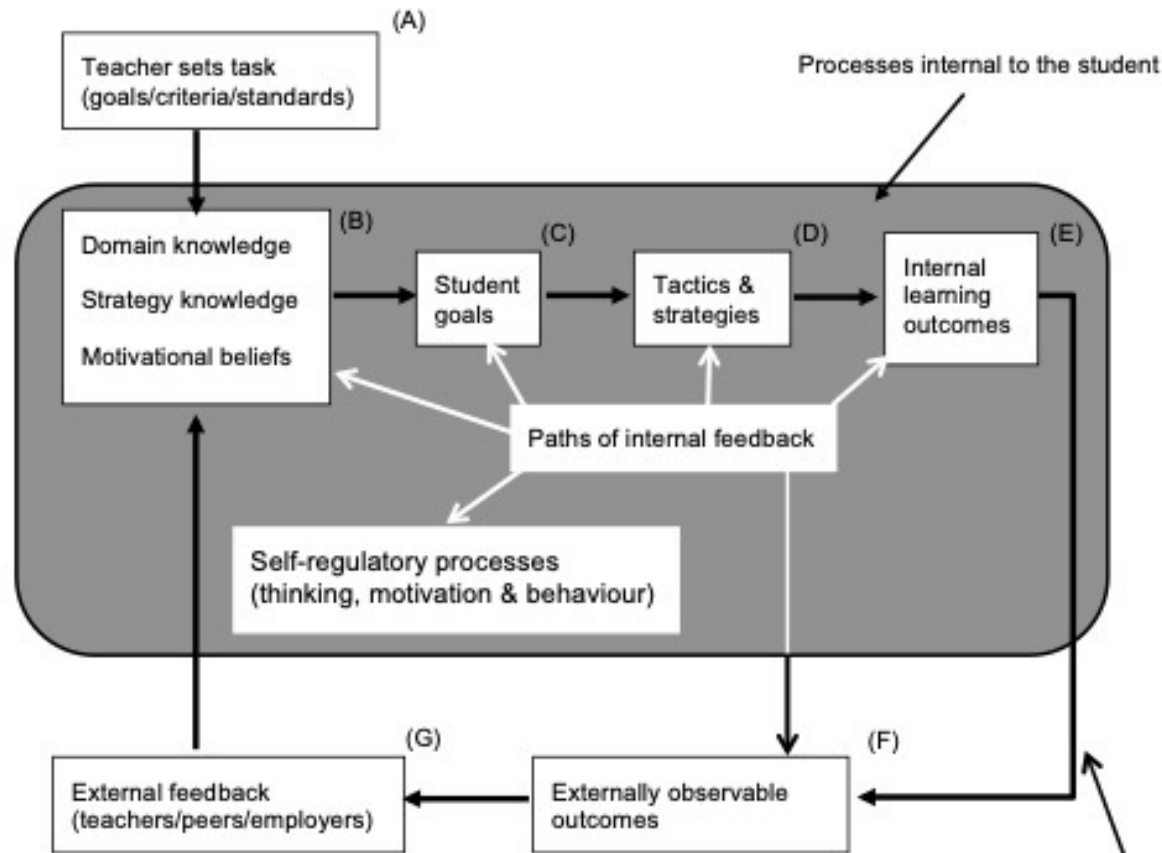


Figure 1: A model of self-regulated learning

Good feedback practices go here.

# Good feedback practices

Sadler (1989) identified three key things feedback must have if a student is to benefit from it:

- i. the student must know what good performance is – i.e. the student must have a concept of the goal or standard being aimed for;
- ii. the student must know how current performance relates to good performance;
- iii. the student must know how to act to close the gap between current and good performance.

# Good feedback practices

Nicol & Macfarlane-Dick (2006) came up with 7 principles of good feedback practice that would facilitate self-regulation of a student's learning. Good feedback practice:

- 1) helps clarify what good performance is (goals, criteria, expected standards);
- 2) facilitates the development of self-assessment (reflection in learning);
- 3) delivers high quality information to students about their learning;
- 4) encourages teacher and peer dialogue around learning;
- 5) encourages positive motivational beliefs and self-esteem;
- 6) provides opportunities to close the gap between current and desired performance;
- 7) provides information to teachers that can be used to help shape teaching.

# Summary

- The role of demonstrator is very class-specific.
- Keeping an eye on students; providing guidance and feedback.
- Keep that feedback meaningful and understandable no matter the context it is provided in.



# PART 5B: Reflecting on your behaviour

## Hatton and Smith (1995)

### Level 1: Descriptive writing

- No reflection, description of events without reasons or justifications

### Level 2: Descriptive reflection

- Description of events with reasons/recognition of alternate viewpoints

### Level 3: Dialogic reflection

- Discourse with self; exploration of the situation

### Level 4: Critical reflection

- Consideration of broader historical, social and/or political contexts

## Johns and Graham (1996)

### Description

- Write a description of the experience.
- What are the key issues within this description that I need to pay attention to?

### Reflection

- What was I trying to achieve?
- Why did I act as I did?
- What are the consequences of my actions
  - for the student(s)?
  - for myself?
- How did I feel about this experience when it was happening?

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Johns, C. and Graham, J. (1996) Using a Reflective Model of Nursing and Guided Reflection. *Nursing Standard* 11 (2) 34-38.

## Reflection

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- Why did I act as I did?
- What are the consequences of my actions
  - for the student(s)?
  - for myself?
- How did I feel about this experience when it was happening?
- How did the student(s) feel about it?
- How do I know how the student(s) felt about it?

## Influencing factors

- What internal factors influenced my decision-making and actions?
- What external factors influenced my decision-making and actions?
- What sources of knowledge did or should have influenced my decision making and actions?

## Alternative strategies

- Could I have dealt better with the situation?
- What other choices did I have?
- What would be the consequences of these other choices?

## Learning

- How can I make sense of this experience in light of past experience and future practice?
- How do I NOW feel about this experience?
- Have I taken effective action to support myself, and others, as a result of this experience?
- Has this experience changed my way of understanding any aspect of my practice?

## Assumptions, beliefs and ideology

- What do my practices say about my assumptions and beliefs about teaching?
- What views of power do they embody?
- Whose interests seem to be served by my practices?
- What is it that acts to constrain my views of what is possible in teaching?

## Action

- Given the chance, what would I do differently next time?
- What changes will I make immediately in order to put my learning into practice?



# PART 5C: Reflecting on your teaching

# Reflecting “on” and “in”

*“Professional practice is characterised by the capacity to reflect on one’s own practice in order that one might learn and develop that practice”*

Donald Schön – The Reflective Practitioner

**Reflection-in-action:**  
While doing something



Happens all the time.  
Quick, transient, often forgotten

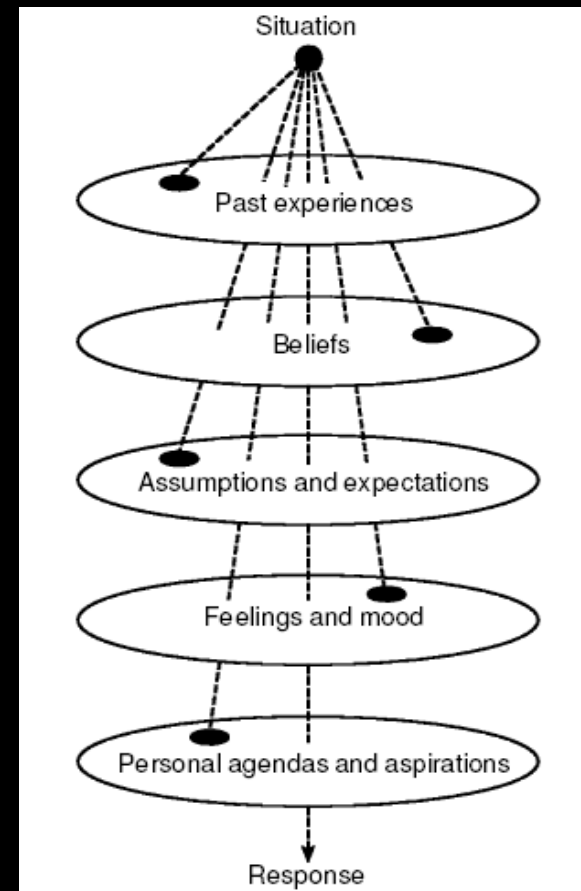
**Reflection-on-action:**  
After you have done it



Needs to be scheduled.  
Allows deep thought on what happened.

# Reflect-on-action

- You will have a unique perspective on how a teaching session went.
- Your perspective is based on “interpretive filters”
- Reflecting on your actions and what you experienced can provide an invaluable learning tool when it comes to improving your skills and practice.
- One way to do this is to maintain a reflective journal/diary.
- When such reflection is rigorous, systematic and ongoing, teachers are acting as *reflective practitioners*.



# How to reflect

Barbara Larrivee (2000) states that there are 3 essential practices in becoming a critically reflective teacher:

- making time for (daily?) solitary reflection;
- becoming a (perpetual?) problem solver;
- questioning the status quo .....always?

# Explore your expectations

When faced with unfamiliar situations we cannot help but imagine what is going to happen and what the experience is going to feel like:

- What expectations did you have before the class?
- Had you visualised yourself in the role of a peer tutor? What did that feel like?

# Explore the experience

Address the following questions and note down your responses (as soon after class as possible!)

- What worked well in this class? Why?
- What did not work well? Why?

Without asking *why* you are simply providing narrative.

Using the John and Graham framework will help you to explore your beliefs about the experience and uncover assumptions you may have made.

These initial notes can help you write the more detailed reflective journal entry, one that moves up the Hatton and Smith levels.

## Level 1: Descriptive writing

- What you did. What happened.

## Level 2: Descriptive reflection

- What you did and why. What could you have done differently?

## Level 3: Dialogic reflection

- Talk to yourself – link back to previous entries you've written. Explore your situation more deeply. Look for patterns/themes.

## Level 4: Critical reflection

- All of the above, but taking into consideration factors outside of your immediate teaching environment. E.g. does University policy influence your approach/methods? Affect of Covid19, etc.

# Uncover assumptions

- There are many techniques and strategies that as teachers we tend to take for granted as good or bad practice.
- These assumptions about good teaching are necessarily wrong, but shouldn't be unquestioningly accepted.
  - They are not necessarily right, or right for everyone, or right every time.
- Stephen Brookfield suggests taking a 'common-sense assumption' and provide one or more perfectly plausible alternative interpretations, thus undermining the taken-for-granted-ness of the assumption.



# Uncover assumptions

Example:

*“It’s common sense to visit small groups after you’ve set them a task, since this demonstrates your commitment to helping them learn. Visiting groups is an example of respectful, attentive, student-centred teaching.”*

- Would students agree with this assumption?
- What other interpretations might there be to ‘visiting groups’?

# Summary

- Self-reflection improves your teaching
- Provides a structured means to learn from your experiences.
- Requires time and effort.
- Worth the effort!

