Refresher Session for SoCo Tutors

Dr Charles Martin SFHEA

Acknowledgement of Country

Figure 1: Image of Canberra from Mt Painter towards Black Mountain

What are the goals for today?

Admin, Reflection and Impact:

- Admin: hours, payslips, timetables, who to ask about what
- Reflection: what challenges have you encountered?
- Strategies: ideas high impact teaching

Schedule

- 00:00: 1. Admin
- 00:30: 2. Reflection
- 01:15: 3. Strategies

You'll need to be in table groups for the activities, ideally you would have 4–5 people at your table.

Move around now to adjust the groups!

Admin Refresher and Updates

Admin Refresher and Updates

Figure 2: An ANU classroom in the Fulton Muir Building

Task: Journey as an educator (5mins)

Everybody here is an **educator** within the School of Computing, but you may not know each other.
You might also have had some teaching experiences outside of SoCo... (maybe not as a job!)
At your table groups:

1. Introduce yourselves to each other
2. Find out what classes you have previously taught and what you will teach this semester

Figure 3: What classes have you been teaching?

About Charles 🤖🎶🥁📝

Charles Martin

- computer scientist, music technology researcher, performer
- teaching computing at ANU since 2019 (and before that…)
- *Assistant Associate Director Education*, School of Computing
- teaches HCI, music computing, systems, creative coding, etc.
- **lately** responsible for training tutors in our college (~90 in 2025, more in 2026…)
- **goal:** make sure teaching in our school is ✨✨awesome✨✨

Figure 4: Charles playing synths (photo by Sandy Ma)

What work have you been doing as a tutor?

- **Teaching labs:** standing at the front speaking to a whole class, helping individuals with work, answering questions, listening to problems and issues, helping students learn!
- **Marking assessments:** evaluating work (what have students learned?), explaining evaluations, writing feedback, explaining reasoning
- **Meeting with course convenors and other tutors:** going to meetings, understanding duties and tasks, providing ideas/info, incorporating feedback
- **Filling in timesheets, doing admin:** navigating ANU websites, understanding rights/responsibilities at work, asking for help

Qualifications for teaching (new✨)

Why did I have to fill in a `docx` form?

HESF (Higher Education Standards Framework) expects universities to have teachers with one degree higher than the taught curriculum. Some level of professional equivalency allowed given they have **supervision** and **professional development** (PD), e.g.,

- PhD students allowed to teach master students
- undergrads may teach undergrads provided they have achieved excellent results in the subject
- Other examples, see ANUP_016608 S28 Table 2

These rules are not new, but CSS is coming into compliance.

This semester, we learned that the `.docx` form is unhelpful, ongoing process to replace this.

Timesheets, hours, and earnings codes

Every two weeks you will need to fill in a timesheet on HORUS (the ANU HR website). Tricky because of way ANU accounts for teaching hours through “earnings codes” where 1 unit of the code may include more than 1 hour of work.

- T42: Marking: 1-to-1 ratio
- T44: “Other required activity”: 1-to-1 ratio
- T21: **Teaching** “Supplementary / scaffolded form of delivery” (that is, tutorials or labs): 1-to-3 ratio (1 hour teaching + 2 hours of “associated working time”)
- T23: **Repeat Teaching** “Supplementary / scaffolded form of delivery” (1 hour teaching + 1 hour associated working time)

Source: ANU Academic Casual Sessional Rates

What work can be done in associated working time?

ANU Enterprise Agreement S2.5—S2.6

- Preparing of teaching activities
- *Contemporaneous marking*
- Administration directly associated with a teaching activity
- Face to face consultation immediately prior to and following a face to face teaching activity
- Online consultation (e.g. email, messages, forums) immediately prior to and following an online teaching activity
- Attendance at meetings specifically for the purpose of assisting the CSA staff member to prepare for their teaching activity

Contemporaneous marking (new✨)

ANU Enterprise Agreement 2023–2026 S2.6

S2.6:

For the purposes of this provision, ‘contemporaneous marking’ means marking that is performed during a teaching activity, or marking work that could have reasonably been performed during the teaching activity, for example, marking oral presentations delivered during class.

so what does “reasonably performed during the teaching activity” mean?

Why do we do it this way? (new✨)

- teaching to associated work time ratios are set out in the Higher Education Industry—Academic Staff—Award 2020 16.4[1]
- tasks for associated working time are in the Enterprise Agreement
- provides guarantees of hours throughout the semester
- protects casual staff against unfair requests from academics (e.g., “You’ll have to attend the lecture to find out what to teach! No you don’t get paid for that!!”)
- provides an automatic allowance for preparation, Q&A and admin work.

Your manager needs to provide tasks for you to complete in Associated Working Time.

[1] so Federal Government level rules

A worked example

- Charles the tutor teaches two 1.5-hour labs, 3 hours of work (preparation, marking, admin, consultation and meetings) related to those labs,
- 3 hours of marking assignments,
- and 1 hour writing test cases for the exam.

Code	Units	Teaching Time	Associated Working Time	Total Hours Worked/Paid
T21 Teaching	1.5	1.5	3	4.5
T23 Repeat Teaching	1.5	1.5	1.5	3
T42 Marking	3			3
T44 Other	1			1

School of Computing: 1.5 + 0.5 structure

In the School of Computing, many of our classes have a 1.5 hour teaching + 0.5 hour consultation time structure.

- Computer Lab: 1.5 hours (T21/23 teaching)
- Consultation Time: 0.5 hours (taken from the associated working time)

Charles advice:

- at the end of 1.5 hours announce “the tutorial is now over, I am staying until X o’clock to answer individual questions.”
- answer questions about any aspect of the course (redirect problem questions to the forum and help the student to write and submit the post).
- don’t do any **group teaching** in consultation time.

Submitting your timesheet

Submit your timesheet **on time**. (please!!)

- suggested submit date is the last Sunday in each two-week pay period.
- actual due date *can change* due to public holidays.
- and **double check that you get paid!**
- Timesheets FAQ

Figure 5: Photo by Joshua Olsen on Unsplash

Safety: What to do if something bad happens?

⚠⚠⚠

Threats of harassment, bullying, violence (interpersonal, psychological, sexual or physical) or disrupting classes completely not acceptable—and not your job to resolve!

⚠⚠⚠

Prioritise your safety. Just walk out.

1. You are in control of your class, if you feel unsafe **walk out!**
2. go to a **safe place** (e.g., Skaidrite Darius Front Office)
3. call **ANU security**: **61252249** or ANUOK App

Emergency Buttons and Phones

- Skaidrite Darius labs have a **red panic button** on the wall near the door: ANU Security will visit immediately if the button is pressed.
- Life threatening emergency call **000** from your phone or **0000** from an ANU Phone, then call ANU Security **61252249** (**52249** from internal phone).

Link: ANU Safety Website

has anybody ever had cause to call in security or stop a class?

Where to get help

- Other tutors: course team / communication channels (varies by course)
- Course Convenor (your direct manager)
- School of Computing front desk (Skaidrite Darius Level 3 or admin.comp@anu.edu.au)
- Peter Hoefner - Associate Director (Education) in School of Computing: adir.education.comp@anu.edu.au
- **me** - Assistant to the above - also adir.education.comp@anu.edu.au

Figure 6: Photo by Matthew Waring on Unsplash

Talk: Admin Confusions (5mins)

Our work in the classroom and when marking assessments is usually clear, but outside of these activities, things can be a bit more hazy. At your tables discuss:

- Are there any aspects of your job admin that are confusing?
- What kind of “associated working time” tasks have you been doing?
- How have you managed communication with your convenor and team?

After a few minutes, share some examples with the room.

Figure 7: What are your experiences managing your job?

Reflection: Your educator journey

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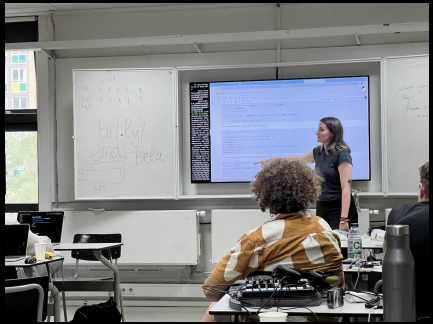

Figure 8: Teaching at a workshop

How do people develop as teachers?

Kugel (1993) describes one pathway of development as university teachers:

- Self
- Subject
- Student…

As educators we also learn and are influenced by our environment, experiences, and self.

Let’s review these phases (presented in new-starter training…) and reflect on your progress as a teacher.

Phase 1: Emphasis on Teaching

1. **Focus on self**: Survival in front of a class! Learning how to explain, fear of not knowing the “right” answers.
2. **Focus on subject**: Covering the topic thoroughly (more than a student!). Preparing packaged, inspiring, and interesting content. Fear of running out of time!
3. **Focus on student**: Students are different! Prepare alternatives formulas and explanations. Learn about student needs, awareness of multiple valid approaches.

Figure 9: A teacher up the front

Phase 2: Emphasis on Learning

4. **Student as active**: Let students do the work! Coaching students in applied learning activities. Teaching less, but more learning occurs.
5. **Student as independent**: Coach students in learning how to learn. Let students independently explore. (What knowledge will be important in computing in 20 years?)
6. **Tuning**: Established skills in previous stages. Move between stages as necessary, updating and experimenting.

Figure 10: A teacher at the side

Risks

Early stages:

- Great content, students not engaging and not learning.
- Overwhelm students with explanations: answering questions not asked.
- Frustrating when student don't find this fascinating topic interesting!

Later stages:

- Getting students to **do** things: tricky.
- Teaching *less* doesn't mean *nothing*: still need telling/showing (explicit teaching).
- Need to do *listening* and *questioning*: these are hard skills.
- Students annoyed! "Just tell me what to do!!"

Task: What stages resonates for you? (10mins)

Think about the phases/stages of teaching described in Kugel (1993)

- Focus on self
- Focus on subject
- Focus on student
- Student as active
- Student as independent
- Tuning
  What stages resonate for you and why?
  Where are you on your teaching journey?

Discuss in your groups and we will come together to hear some responses.

Figure 11: What kind of a teacher will you be this semester?

Task: Joys and Challenges (5mins)

Reflect on the teaching experiences that you have had and think about the highs and lows

- What **do you enjoy** about tutoring?
- What challenges **have you faced** or do you **expect to face** as a tutor?
- What aspects of tutoring would you most like support with?

Discuss with your group and then we'll hear some example of each question from each table.

Figure 12: What are your expectations about tutoring?

Strategies: High Impact Teaching Strategies

Strategies: High Impact Teaching Strategies

In this section we will think about how to make our teaching *better*, given the resources and agency we have as tutors.
I'll go through a resource called *High Impact Teaching Strategies* and we will try to align these to our work in computing.
HITS summarises evidence-backed teaching strategies (e.g., from studies reported in Hattie, 2009)

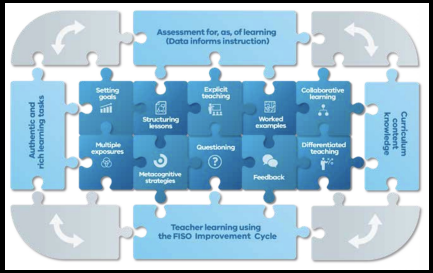

Figure 13: The 10 high impact teaching strategies

High Impact Teaching Strategies

Department of Education and Training, Melbourne (2017)

1. Setting Goals
2. Structuring Lessons
3. Explicit Teaching
4. Worked Examples
5. Collaborative Learning
6. Multiple Exposures
7. Questioning
8. Feedback
9. Metacognitive Strategies
10. Differentiated Teaching

Figure 14: Go get the booklet

1. Setting Goals

Lessons have clear learning intentions with goals that clarify what success looks like.

- Students see what they need to understand and do
- Teachers can focus on meeting the goals
- Links to explicit assessment criteria

both students and teachers need to see the goals!

2. Structuring Lessons

A lesson structure maps teaching and learning that occurs in class.

- clear expectations
- learning is sequenced and linked
- scaffolding

3. Explicit Teaching

Students are clearly shown what to do and how to do it.

- intentions and success criteria are made transparent to students
- teacher demonstrates them by modelling
- teacher checks for understanding

4. Worked Examples

A worked examples demonstrates the steps required to complete a task or solve a problem.

Teacher presents the example and explains each step. Later, students use the example during independent practice.

- scaffolds learning to support skill acquisition
- reduces cognitive load
- supports independent practice

5. Collaborative Learning

Students work in small groups and everyone participates in a learning task.

- many approaches with different kinds of organisation
- students work together applying acquired knowledge
- cooperatively solve problems
- fosters peer learning
- competition between groups

6. Multiple Exposures

Students get multiple opportunities to encounter, engage with, and elaborate on new knowledge and skills.

- deep learning needs time
- spaced-out interaction with knowledge supports learning
- space out practice with different activities to vary interaction with knowledge

7. Questioning

Questioning is a technique to help students gain cognitive tools for learning *themselves* rather than presenting *answers* (remember our intro training?)

- yields feedback on student understanding
- supports informal feedback
- engage students, stimulates interest and curiosity in the learning, and makes links to students lives
- plan questions for probing, extending, revising and reflecting
- use open questions
- cold call and strategic sampling can be used

8. Feedback

Feedback informs a student and/or teacher about the student's performance relative to learning goals.

- redirects actions to align with learning goals
- feedback can be from teachers or peers
- can be informal or formal
- can be oral, written, formative, or summative
- always needs to be specific and actionable (remember intro training!)

9. Metacognitive Strategies

Metacognitive strategies teach students to think about their own thinking.

- students who are aware of learning process gain control over learning
- extends to self-regulation; managing one’s own motivation
- can include planning approach to tasks
- evaluating progress and monitoring comprehension

This can involve explicitly teaching problem solving, study skills, and self-questioning

10. Differentiated Teaching

Methods teachers use to extend the knowledge and skills of every student in every class, regardless of their starting point.

- lift performance of all students
- including those falling behind
- including those way ahead
- effective differentiation: lessons incorporate adjustments for content, process, and product

Summary page of the HITS

1. Setting Goals

Overview

Lessons have clear learning intentions with goals that clarify what success looks like.

Lesson goals always explain what students need to understand, and what they must be able to do. This helps the teacher to plan learning activities, and helps students understand what is required.

Key elements

- Based on assessed student needs
- Goals are presented clearly so students know what they are intended to learn
- Can focus on surface and/or deep learning
- Challenges students relative to their current mastery of the topic
- Links to explicit assessment criteria

Related effect sizes*

- Goals – 0.56
- Teacher clarity – 0.75

2. Structuring Lessons

Overview

A lesson structure maps teaching and learning that occurs in class.

Sound lesson structures reinforce routines, scaffold learning via explicit teaching cycles. They optimise time on task and classroom climate by using smooth transitions. Planned sequencing of teaching and learning activities stimulates and maintains engagement by linking lesson and unit learning.

Key elements

- Clear expectations
- Sequencing and linking learning
- Clear instructions
- Clear transitions
- Scaffolding
- Questioning/feedback
- Formative assessment
- Exit cards

Related effect sizes*

- Scaffolding – 0.53
- Formative evaluation – 0.68
- Teacher clarity – 0.75

3. Explicit Teaching

Overview

When teachers adopt explicit teaching practices they clearly show students what to do and how to do it.

The teacher decides on learning intentions and success criteria, makes them transparent to students, and demonstrates them by modelling. The teacher checks for understanding, and at the end of each lesson revisits what was covered and ties it all together (Hattie, 2008).

Key elements

- Shared learning intentions
- Relevant content and activities
- New content is explicitly introduced and explored
- Teacher models application of knowledge and skills
- Worked examples support independent practice
- Practice and feedback loops uncover and address misunderstandings

Related effect sizes*

- Goals – 0.56
- Worked examples – 0.57
- Time on task – 0.62
- Spaced practice – 0.60
- Direct instruction – 0.59
- Teacher clarity – 0.75

4. Worked Examples

Overview

A worked example demonstrates the steps required to complete a task or solve a problem.

By scaffolding the learning, worked examples support skill acquisition and reduce a learner's cognitive load.

The teacher presents a worked example and explains each step. Later, students can use worked examples during independent practice, and to review and embed new knowledge.

Key elements

- Teacher clarifies the learning objectives then demonstrates what students need to do to acquire new knowledge and master new skills
- Teacher presents steps required to arrive at the solution so students' cognitive load is reduced and they can focus on the process
- Students practice independently using the worked example as a model

Related effect sizes*

- Worked examples – 0.57
- Spaced practice – 0.60

5. Collaborative Learning

Overview

Collaborative learning occurs when students work in small groups and everyone participates in a learning task.

By scaffolding the learning, worked examples support skill acquisition and reduce a learner's cognitive load.

Collaborative learning is supported by designing meaningful tasks. It involves students actively participating in negotiating roles, responsibilities and outcomes.

Key elements

- Students work together to apply previously acquired knowledge
- Students cooperatively solve problems using previously acquired knowledge and skills
- Students work in groups that foster peer learning
- Groups of students compete against each other

Related effect sizes*

- Peer tutoring – 0.55
- Reciprocal teaching – 0.74
- Small group learning – 0.49
- Cooperative learning vs whole class instruction – 0.41
- Cooperative learning vs individual work – 0.59
- Cooperative learning vs competitive learning – 0.54

Months of progress**

- Collaborative learning +5
- Peer tutoring +5

6. Multiple Exposures

Overview

Multiple exposures provide students with multiple opportunities to encounter, engage with, and elaborate on new knowledge and skills.

Research demonstrates deep learning develops over time via multiple, spaced interactions with new knowledge and concepts. This may require spacing practice over several days, and using different activities to vary the interactions learners have with new knowledge.

Key elements

- Students have time to practice what they have learnt.
- Timely feedback provides opportunities for immediate correction and improvement.

Related effect sizes*

- Time on task – 0.62
- Spaced practice – 0.71
- Feedback – 0.73

Months of progress**

- Mastery learning +5

7. Questioning

Overview

Questioning is a powerful tool and effective teachers regularly use it for a range of purposes. It engages students, stimulates interest and curiosity in the learning, and makes links to students' lives.

Questioning opens up opportunities for students to discuss, argue, and express opinions and alternative points of view.

Effective questioning yields immediate feedback on student understanding, supports informal and formative assessment, and captures feedback on effectiveness of teaching strategies.

Key elements

- Plan questions in advance for probing, extending, revising and reflecting
- Teachers use open questions
- Questions used as an immediate source of feedback to track progress/understanding
- Cold call and strategic sampling are commonly used questioning strategies

Related effect sizes*

- Questioning – 0.46

8. Feedback

Overview

Feedback informs a student and/or teacher about the student's performance relative to learning goals.

Feedback redirects or reshapes teacher and student actions so the student can stay on effort and activity with a clear outcome that leads to achieving a learning goal.

Teachers and peers can provide formal or informal feedback. It can be oral, written, formative or summative. Whatever its form, it comprises specific advice a student can use to improve performance.

Key elements

- Precise, timely, specific, accurate and actionable
- Questioning and assessment is feedback on teaching practice
- Use student voice to enable student feedback about teaching

Related effect sizes*

- Feedback – 0.73

Months of progress**

- Feedback +8

9. Metacognitive Strategies

Overview

Metacognitive strategies teach students to think about their own thinking.

When students become aware of the learning process, they gain control over their learning.

Metacognition extends to self-regulation, or managing one's own motivation toward learning. Metacognitive activities can include planning how to approach learning tasks, evaluating progress, and monitoring comprehension.

Key elements

- Teaching problem solving
- Teaching study skills
- Promotes self-questioning
- Classroom discussion is an essential feature
- Uses concept mapping

Related effect sizes*

- Teaching problem solving – 0.63
- Study skills – 0.60
- Self-questioning – 0.64
- Classroom discussion – 0.82
- Concept mapping – 0.64

Months of progress**

- Metacognition and self-regulation +8

10. Differentiated teaching

Overview

Differentiated teaching are methods teachers use to extend the knowledge and skills of every student in every class, regardless of their starting point.

The objective is to lift the performance of all students, including those who are falling behind and those ahead of year level expectations.

To ensure all students master objectives, effective teachers plan lessons that incorporate adjustments for content, process, and product.

Key elements

- High quality, evidence based group instruction
- Regular supplemental instruction
- Individualised interventions

Related effect sizes*

- RTI – 1.07
- Flipgrid programs - 1.28
- Second and third chance programs - 0.5

Months of progress**

- Individualised instruction +7
- Mastery learning +5

Task: Which strategies resonate? (5mins)

Now you have heard about the HITS, which of these resonate to you?

Discuss at your table:

> *Which strategy(ies) resonate with your experience and philosophy as a teacher, and why?*

We'll come together to hear some responses. Each table needs to pick **one strategy** to focus on for the next task.

1. Setting Goals
2. Structuring Lessons
3. Explicit Teaching
4. Worked Examples
5. Collaborative Learning
6. Multiple Exposures
7. Questioning
8. Feedback
9. Metacognitive Strategies
10. Differentiated Teaching

Task: making concrete plans (15mins)

- **the task is to *ideate* ways to apply *one* HIT strategy in SoCo**

we'll do a Crazy 8s design sprint.

1. fold your piece of paper into 8 sections.
2. start the 8 minute timer
3. sketch one application of the HIT strategy in each rectangle
4. stop when the alarm goes off

After the sprint, you will analyse the sketches you have ideated and choose **one** to present to the group.

Figure 15: Crazy 8s is a design sprint method.

Questions: Who has a question?

Questions: Who has a question?

Who has a question?

We're at the end of our refresher, I'll try to leave some time for general questions. If we don't have time, feel free to get in touch to ask questions later!

Figure 16: Time for coffee.

References

References i

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