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# Embedding wellbeing into IT teaching: A practice-based case study of inclusive and data-informed support in higher education

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Student mental health is a growing concern in Australian higher education, particularly in computing courses where novice learners often experience cognitive overload, assessment anxiety and uncertainty about technical problem-solving. In this practice-based case study, we investigate a wellbeing-oriented teaching intervention implemented across undergraduate and postgraduate computing and data analytics units from 2022 to 2025. The intervention combined structured explanations, worked examples, rapid formative feedback, inclusive classroom communication, flexible access to learning materials and data-informed early support. We drew evidence from institutional teaching evaluations, de-identified student comments and reflective practitioner analysis. Across eight computing offerings, weighted mean ratings were high for overall satisfaction (8.33/10), clarity of communication (8.22/10), timely responses (8.31/10) and motivation to learn (8.10/10). Further data analytics subjects recorded overall teaching ratings of 4.0 to 4.9 out of five. Qualitative feedback indicated that step-by-step explanations, practical examples, approachable communication and timely feedback reduced uncertainty and helped students feel more confident. The study contributes a transferable framework for embedding mental health support within everyday IT teaching practice rather than treating wellbeing as separate from curriculum design.

*Keywords:* student mental health, computing education, inclusive teaching, formative feedback, cognitive load, learning analytics, case study

## 1. Introduction

Universities increasingly recognise that student mental health is inseparable from learning, engagement and persistence, with Australian evidence highlighting psychological distress among university students and the importance of coordinated wellbeing strategies (Orygen, 2017, 2020; Stallman, 2010). This concern is also connected to student retention and success, where inclusive learning communities, engagement and institutional transformation are central to supporting diverse students (Thomas et al., 2021).

This paper presents a practice-based case study of a stress-buffering teaching intervention implemented across computing, programming, web development, data management, cloud computing, artificial intelligence and data analytics units in Australian higher education. The intervention was not designed as clinical mental health support. Rather, it sought to reduce avoidable academic stress by making teaching clearer, feedback faster, assessment expectations more transparent and learning environments more inclusive. The central argument is that teaching design can act as a first layer of prevention: it cannot remove all student stress, but it can reduce stress that is created or intensified by unclear learning conditions.

The paper is framed around the following research question: How can inclusive and data-informed teaching practices in IT subjects support undergraduate student mental health by reducing academic stress and strengthening confidence, engagement and belonging? The contribution is a transferable model for computing educators who wish to integrate wellbeing support into routine teaching actions, including explanations, demonstrations, feedback, check-ins, group support and learning analytics. Our model also aligns with the Professional Standards Framework's emphasis on inclusive teaching, evidence-informed practice and supporting learner success (Advance HE, 2023).

In this study, connection is understood in three ways. First, students need connection between abstract concepts and practical examples. Second, students need connection with teaching staff through timely and respectful communication. Third, students need connection with peers and the learning community so that difficulty is not experienced as isolation. These forms of connection are pedagogical as well as relational, and they are particularly important when students are learning technically complex material.

## 2. Conceptual framing

### 2.1 Mental health as a curriculum and teaching concern

Student wellbeing in higher education is influenced not only by individual circumstances but also by the design of learning environments, assessment practices and staff-student relationships (Baik et al., 2019; Kahu & Nelson, 2018; Thomas, 2012). Recent work on student mental health systems also argues that universities need actionable data, stakeholder involvement and proactive whole-of-institution approaches rather than relying only on students to self-identify and seek help (Broglia & Barkham, 2024; Foster, 2026). A recent work from Luke et al. (2025) also links caring, responsive online teaching with emotional engagement and course completion.

For IT educators, this framing is important because many sources of student stress are discipline specific. Programming errors can appear absolute and personal to beginners, even though they are normal parts of software development. Database, cloud, analytics and web development tasks can involve multiple tools, hidden dependencies and unfamiliar interfaces. Assessment artefacts often require students to demonstrate both conceptual understanding and technical implementation. When expectations are not explicit, students may spend excessive time guessing what is required rather than learning the intended concept.

### 2.2 Cognitive load, formative feedback and universal design

Cognitive Load Theory (CLT) provides a useful lens for computing education because many IT tasks require learners to process new syntax, conceptual models, interface conventions and problem-solving strategies at the same time (Sweller, 2011). When teaching materials are poorly organised, extraneous cognitive load can increase and students may experience confusion as personal inability. Structured explanations, worked examples, live demonstrations and gradual release of complexity can reduce unnecessary burden and allow students to focus on the core concept.

Formative feedback theory further emphasises that feedback should help students answer three questions: Where am I going, how am I going and where to next? (Hattie & Timperley, 2007). In the present case study, feedback was interpreted not only as correction but also as reassurance, direction and confidence-building. This is closely related to self-regulated learning because students need feedback they can act on, not only judgements of what they have done (Day et al., 2021; Nicol & Macfarlane-Dick, 2006).

Universal Design for Learning (UDL) complements these ideas by encouraging multiple means of engagement, representation and action (CAST, 2018). In IT subjects, UDL may include recorded explanations, annotated code examples, visual walkthroughs, alternative ways of asking questions, formative checkpoints and practical exercises that allow students to practise before high-stakes submission. UDL is also relevant to diverse cohorts, including international students, students entering from different educational systems and students who arrive late due to visa, enrolment or transition issues.

### 2.3 A stress-buffering pedagogy for computing

Bringing these perspectives together, in the paper we conceptualise stress-buffering pedagogy as a set of ordinary teaching practices that reduce avoidable academic stress while preserving appropriate academic challenges. The goal is not to make IT subjects easy. Instead, it is to make challenge legible, staged and supported. Students should understand what they are trying to learn, how success will be judged, what to do when they are stuck and where to seek support before problems escalate. Such practices are organized into the CLEAR model (section 4.1 below). CLEAR's novelty lies in organising these established traditions around computing-specific uncertainty rather than in claiming new individual practices.

In computing education, our approach is effective because technical difficulty can be productive when students have sufficient scaffolding. Debugging, design, iteration and data analysis all involve uncertainty. However, uncertainty becomes harmful when students cannot distinguish between productive struggle and unclear instruction. A stress-buffering approach therefore makes the learning process visible: it explains why errors happen, demonstrates how experts reason through problems and invites students to ask for clarification early.

## 3. Research context and method

### 3.1 Case study context

This study used a retrospective, practice-based case study design. The context was teaching across multiple computing and data-related units delivered between 2022 and 2025 in Australian higher education. The teaching contexts included introductory programming, computer systems, computing technology inquiry projects, fundamentals of data management, web application development, big data management and data analytics subjects. The authors acted as practitioner-researchers, drawing on institutional teaching evaluation summaries, de-identified student comments and reflective analysis of iterative teaching changes. The eight computing offerings represented approximately 2,900 enrolled students; across the combined institutional sources, around 637 feedback responses were analysed.

The purpose of this case study was to understand how a set of teaching practices operated in authentic learning environments rather than to test a single isolated intervention. The intervention evolved across semesters as feedback was received and teaching practices were refined. The outcome reflects the reality of educational practice, where improvement is often cumulative, responsive and context sensitive.

### 3.2 Data sources and analysis

The data was analysed as educational evaluation evidence rather than as a controlled experiment. Quantitative indicators were used to identify patterns in student perceptions of teaching quality, clarity, timeliness and motivation. Qualitative comments were thematically reviewed to identify stress-related mechanisms, such as clarity, confidence, responsiveness, approachability, group integration and practical relevance. Negative and constructive comments were also included because they identified areas where the intervention needed refinement, particularly the need for slower explanations, more demonstrations, clearer marking communication and more interactive online learning. Trustworthiness was strengthened by retaining negative and constructive comments, identifying recurring patterns across offerings and triangulating qualitative themes with quantitative indicators.

The quantitative synthesis used item-level staff evaluation means from eight computing offerings and subject-level evaluation scores from three data analytics offerings. For the eight computing offerings, weighted averages were calculated using the number of item responses available for each teaching evaluation item. Through this process, we reduced the influence of very small cohorts while retaining the full pattern of evidence across contexts. The qualitative synthesis did not count comments as objective measures of wellbeing. Instead, comments were interpreted as student perceptions of the conditions that made learning manageable. The qualitative dataset included 136 open-text responses; non-substantive entries were not treated as thematic evidence.

Table 1.
*Data sources used in the case study*

| Data source | Scope | Use in analysis |
|---|---|---|
| Institutional teaching evaluations in computing units | Eight offerings from 2022 to 2024; item-level responses ranged from one to 74 per offering | Quantitative indicators of satisfaction, clarity, timely response and motivation |
| De-identified student comments | Open-text feedback from programming, systems, project, data and web units | Thematic evidence of clarity, support, confidence, feedback and areas for improvement |
| Online learning evaluation evidence | One online teaching period with an overall rating of 4.2/5 | Evidence of proactive communication, examples, drop-in sessions and responsiveness |
| Data analytics subject evaluations | Three subjects from 2023 to 2024 with response rates from 55% to 82% | Cross-context evidence of practical examples, respectful teaching and assistance |
| Practitioner reflection | Iterative changes across weekly tutorials, labs and assessment support | Interpretation of mechanisms and development of the intervention framework |

### 3.3 Ethical and interpretive boundaries

The study is limited by the use of secondary institutional feedback data, variable response rates and the absence of pre- and post-intervention wellbeing measures. Therefore, the findings should not be interpreted as causal evidence that teaching practices directly improved mental health. Instead, the paper offers a theoretically informed and evidence-supported account of how ordinary teaching practices can reduce perceived academic stress in IT learning environments. Student comments were treated as de-identified evaluation evidence and were paraphrased where appropriate to preserve confidentiality. The feedback was collected through the university's standard end-of-semester quality-assurance process, provided in de-identified form, and no additional student data were collected for this analysis.

## 4. Stress-buffering teaching intervention

### 4.1 The CLEAR model

Tables 2 and 3 show the model for stress-buffering techniques and the teaching mechanism related to the technique. The intervention was designed around the idea that teaching can buffer academic stress when it reduces unnecessary uncertainty and increases students' sense of capability. Through iterative reflection, the practices were organised into the CLEAR model: *Clarify expectations*, *Layer complexity*, *Enable help-seeking, Act rapidly on feedback and Review engagement data*. The model shown in Figure 1 is deliberately simple because it is intended for everyday use by IT educators in tutorials, labs, workshops and online learning spaces.

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Figure 1. *CLEAR: Wellbeing oriented teaching framework for computing education*

Table 2.
*The CLEAR model for stress-buffering IT teaching*

| Element | Teaching practice | Wellbeing rationale |
|---|---|---|
| Clarify expectations | Explain task purpose, required evidence, marking expectations and common mistakes before students begin. | Reduces ambiguity and assessment anxiety. |
| Layer complexity | Move from working example to guided practice to independent attempt, using visible reasoning and debugging. | Reduces cognitive overload and supports confidence. |
| Enable help-seeking | Use approachable communication, repeated invitations for questions and normalisation of errors. | Reduces shame, isolation and fear of asking questions. |
| Act rapidly on feedback | Provide quick responses, timely marking, brief next-step guidance and targeted reminders. | Reduces waiting stress and helps students regain momentum. |
| Review engagement data | Monitor attendance, LMS activity, submissions and signs of disengagement. | Supports early outreach before students fall too far behind. |

### 4.2 Enacting the intervention in IT classes

Structured teaching involved beginning sessions with a short recap, identifying the main learning goal, modelling a task step by step and then asking students to apply the concept in a supported activity. In programming and data analytics subjects, examples were linked to practical or real-life scenarios so that students could see why an abstract concept mattered. This was intended to reduce cognitive overload and support transfer from demonstration to independent practice.

Transparent assessment practices included unpacking task requirements, discussing marking expectations, using examples where appropriate and explaining how weekly tasks contributed to larger outcomes. Students were encouraged to ask clarification questions early rather than waiting until submission deadlines. Where group projects were involved, workload coordination was supported through weekly goal setting and discussion of how tasks could be divided. Rapid formative feedback was implemented through timely marking, classroom feedback, brief email responses, drop-in sessions and targeted guidance. Feedback focused on the next action: what was working, what needed revision and what the student could try next. The intention was to reduce evaluation anxiety by making progress visible and achievable. Inclusive classroom communication focused on approachability, patience and psychological safety. Students were explicitly invited to ask questions multiple times and to treat errors as part of technical learning. Additional support was provided for late-arriving and international students, including catch-up explanations, group integration and reassurance about missed content. These steps were intended to address transition stress, which can quickly become academic stress when students feel that they have already fallen behind.

Data-informed early support included attention to attendance, learning management system participation, assessment submission patterns and student questions. The purpose was not surveillance, but early identification of students who may need clarification, encouragement or referral to formal support. This approach is consistent with learning analytics research that encourages instructors to connect student data with personalised support actions, while also recognising that student mental health data must be actionable, ethical and embedded in appropriate support systems (Broglia & Barkham, 2024; Pardo et al., 2018). Recent AJET work also stresses transparency, privacy and student trust in pedagogical uses of learning analytics (Soffer & Cohen, 2024).

Table 3.
*Teaching actions and stress-buffering mechanisms*

| Teaching action | Academic stressor addressed | Illustrative student evidence |
|---|---|---|
| Step-by-step explanations and worked examples | Cognitive overload and conceptual confusion | Students described concepts as clear and coding tasks as easier to understand. |
| Real-life examples and practical demonstrations | Abstraction and low perceived relevance | Students valued practical examples and a balance of theory and application. |
| Timely marking and quick responses | Assessment uncertainty and waiting anxiety | Students noted that tasks were marked on time and emails were answered quickly. |
| Constructive, actionable feedback | Evaluation anxiety and problem-solving frustration | Students reported feedback that helped them improve without simply giving answers. |
| Approachable and patient communication | Help-seeking anxiety | Students described feeling comfortable, supported and able to ask questions. |
| Weekly structure for group work | Workload and coordination stress | Students reported that clear weekly priorities helped groups stay on track. |
| Catch-up pathways for late arrivals | Belonging and transition stress | Students described support to catch up, join a group and make connections. |

## 5. Findings

### 5.1 Quantitative teaching evaluation patterns

Across eight computing offerings, the available staff-level evaluation summaries showed consistently positive student perceptions. Weighted by the number of item responses in each offering, the mean ratings were 8.33/10 for overall satisfaction, 8.22/10 for clear and effective communication, 8.31/10 for helpful and timely responses and 8.10/10 for motivation and inspiration to learn. These indicators are not direct mental health measures, but they are relevant because clarity, responsiveness and motivation are conditions that can reduce uncertainty and support persistence.

The evidence from data analytics subjects provided further support across a different institutional setting. Overall ratings were 4.8/5 in one 2023 data analytics subject, 4.0/5 in one 2024 subject and 4.9/5 in another 2024 subject. The lower rating of 4.0/5 is important because it signals that the intervention should not be interpreted as uniformly successful in every context. Comments on that subject indicated that some students still relied on peers to cope with the subject, suggesting a need for stronger scaffolding and more explicit learning pathways in technically demanding content. We show a summary of the quantitative evaluation evidence in Table 4.

Table 4.
*Summary of quantitative evaluation evidence*

| Indicator | Result | Interpretation for stress-buffering teaching |
|---|---|---|
| Computing offerings, overall satisfaction | Weighted mean 8.33/10 across 275 item responses | Students generally perceived the teaching environment positively. |
| Computing offerings, clear communication | Weighted mean 8.22/10 | Clarity was a recurring strength, supporting reduced uncertainty. |
| Computing offerings, timely responses | Weighted mean 8.31/10 | Responsiveness likely reduced access anxiety and waiting stress. |
| Computing offerings, motivation to learn | Weighted mean 8.10/10 | Supportive teaching was associated with willingness to persist. |
| Online learning evaluation | Overall rating 4.2/5 | Proactive information, examples and drop-in sessions were valued. |
| Data analytics evaluations | Overall ratings of 4.0/5, 4.8/5 and 4.9/5 | Practical examples, respect and assistance were evident across contexts, but scaffolding needs varied. |

### 5.2 Qualitative themes from student feedback

The qualitative comments provided a richer explanation of why the intervention may have supported students' confidence and perceived wellbeing. Four themes were most prominent: (a) clarity and sequencing, (b) rapid feedback and communication, (c) psychological safety and belonging, and (d) practical relevance.

First, students repeatedly valued clarity and structure. One student described the lesson structure as "straightforward, easy to follow and effective in terms of my learning." In programming contexts, comments indicated that clear explanations made coding easier and helped students understand errors. This theme supports the CLT-informed design of the intervention, because students appeared to benefit when technical material was broken into visible steps rather than presented as a complete solution.

Second, students valued timely and actionable feedback. Several comments referred to quick marking, useful feedback and guidance that pointed students towards improvement without being overly directive. In IT subjects, feedback is especially important because students often need to know whether their reasoning, code, configuration or analysis is on the right track. When feedback is delayed, students may continue building on misunderstandings or avoid progressing. When feedback is timely, it can reduce waiting stress and restore momentum.

Third, students highlighted approachability and psychological safety. They described the teaching style as friendly, patient, calm, supportive and easy to communicate with. Such comments matter because help-seeking is central to learning in computing. Students who feel embarrassed about errors or worried about being judged may avoid asking questions until problems become more difficult to solve. A calm and approachable classroom environment can therefore support both learning and wellbeing.

Fourth, students valued practical relevance. In data subjects, students commented positively on the use of real-life examples, practical applications and engaging lessons. This suggests that relevance can reduce stress by helping students understand why they are learning a concept and how it can be used beyond the classroom. In computing education, where abstraction can be high, concrete examples can help students make sense of unfamiliar ideas. Student-facing evidence and pedagogical interpretation of these four themes are shown in Table 5.

Table 5.
*Qualitative themes and pedagogical interpretation*

| Theme | Student-facing evidence | Pedagogical interpretation |
|---|---|---|
| Clarity and sequencing | Students described explanations as clear, straightforward and easy to follow. | Structured modelling reduced extraneous cognitive load. |
| Timely feedback | Students referred to quick marking, helpful feedback and useful next steps. | Feedback reduced uncertainty and supported self-regulation. |
| Approachability | Students described the teacher as patient, friendly, calm and supportive. | Psychological safety encouraged help-seeking. |
| Practical relevance | Students valued real-life examples and practical applications. | Relevance connected abstract concepts to meaningful use. |
| Group and transition support | Students noted help with group formation, catch-up and staying on track. | Belonging and structure reduced transition and workload stress. |

### 5.3 Constructive feedback and refinements

The data also included constructive comments that are important for credible interpretation. One student asked for "more explanations of the tasks" at "a slower pace," while others requested live demonstrations and more interactive online elements. Others raised concerns about marking communication, pacing or the amount of time available for individual support during labs. These comments show that stress-buffering teaching requires ongoing calibration. A practice that feels supportive to one student may feel rushed, strict or insufficiently detailed to another.

In response, the refined model gives greater emphasis to live demonstrations, short formative checkpoints and explicit pacing. For example, complex tools such as logic simulators, assembly programming environments, data visualisation platforms or web application frameworks may require a short demonstration before students begin independent work. Similarly, online lectures may need embedded questions, short polls, practice tasks or worked examples to prevent students from experiencing the content as passive and disconnected.

Constructive feedback (shown in Table 6) also suggested that assessment communication should include not only what students need to submit but also how marking progress will be communicated. When students are waiting for marks on a heavily weighted project, lack of information can generate stress even if the teaching itself is supportive. The refined intervention therefore includes more deliberate updates about marking timelines, common errors observed across submissions and opportunities to clarify feedback.

Table 6.
*Refinements arising from constructive feedback*

| Student concern | Risk for student wellbeing | Refined practice |
|---|---|---|
| Some explanations felt rushed or vague | Confusion and reduced confidence | Use slower modelling, pause points and visible worked examples. |
| Need for more live demonstrations | Difficulty applying abstract instructions | Demonstrate tools before independent lab work. |
| Desire for more interactive online learning | Disengagement and isolation | Add polls, short tasks, chat prompts and formative checks. |
| Uncertainty about marking progress | Assessment anxiety | Provide timeline updates and general feedback on common issues. |
| Uneven time for individual help in labs | Perceived lack of access to support | Use triage routines, queue systems and group clarification moments. |

## 6. Discussion

### 6.1 Wellbeing support embedded in ordinary teaching

The findings suggest that student mental health support in IT education can be embedded within everyday teaching practice. The central implication is that wellbeing-oriented teaching does not require educators to become counsellors. Rather, it requires educators to design learning environments that reduce avoidable uncertainty, make expectations explicit and create conditions where students can ask for help early. This distinction is important because staff can support wellbeing within the boundaries of their educational role while still referring students to specialist services when needed. The case study also supports a shift from reactive to proactive support. A reactive model waits until students fail, disappear or request special consideration. A proactive model uses early engagement evidence, timely feedback and

supportive communication to reduce the chance that uncertainty becomes distress. This aligns with recent student mental health profiling literature, which argues that targeted and personalised support can complement traditional reactive service models when it is carefully designed and ethically governed (Foster, 2026).

### 6.2 Implications for IT educators

For computing educators, the proposed model has several practical implications. First, every technical task should be accompanied by an explanation of purpose, process and expected evidence of learning. Second, demonstrations should make expert thinking visible by narrating why a tool, command or debugging step is used. Third, assessment feedback should be designed as an ongoing learning process rather than a one-off judgement, which is consistent with assessment-for-learning approaches in higher education (Day et al., 2021). Fourth, inclusive communication should be treated as a core teaching skill rather than a personal quality. Students in the data repeatedly valued patience, approachability and respect. These behaviours are pedagogically significant because they influence whether students ask questions, attend sessions and persist with difficult tasks. Fifth, learning analytics should be used cautiously and ethically as a support tool. Attendance, submission and engagement data can help staff notice patterns, but outreach should be framed as care rather than compliance.

The findings also show that students notice and value teaching behaviours that may appear ordinary: answering email quickly, explaining errors, checking whether students understand, helping a late-arriving student join a group, or using examples from practice. Together, these behaviours connect cognitive-load management, formative feedback, inclusive access and data-informed support. In computing, where debugging and visible failure are routine, this integration can help distinguish productive technical struggle from avoidable uncertainty.

### 6.3 Transferability beyond the case

Although the case is grounded in computing and data education, the CLEAR model is transferable to other disciplines that involve complex concepts, staged skill development and high assessment pressure. The specific examples may change, but the underlying principles are likely to remain relevant: clarify the task, layer the challenge, enable help-seeking, act quickly on feedback and review engagement data. The model may be particularly useful in first-year subjects, transition programs, postgraduate conversion courses and large classes where students can feel anonymous. Transferability also depends on institutional conditions. Educators need sufficient time, workload recognition and access to learning data to provide proactive support. They also need professional development in inclusive pedagogy, feedback design and responsible use of data. This is particularly relevant in IT studies, where retention and attrition are shaped by interactions among academic, social and professional integration factors rather than by a single teaching issue (Kori & Pedaste, 2021).

## 7. Limitations and future work

This study has several limitations. The data were drawn from institutional feedback systems rather than a purpose-designed mental health research instrument. Response rates varied across offerings, and some cohorts had very small numbers of item-level responses. Student comments were voluntary and may over-represent students with particularly positive or negative experiences. The analysis is also retrospective and practitioner-led, which creates the possibility of interpretive bias.

The study also cannot separate the effects of individual teaching style from the effects of the intervention design. For example, students may have responded positively to personal qualities such as patience or enthusiasm as well as to structured explanations and timely feedback. Future research should examine whether the CLEAR model can be implemented by multiple educators across different units and whether similar patterns emerge. Future work will strengthen the design by incorporating short, anonymous stress pulse-checks at key points in the trimester, such as weeks two, five and before assessment deadlines. These could be triangulated with learning analytics, submission patterns and qualitative feedback. Any future use of student wellbeing data should follow principles of transparency, relevance and actionability so that data collection leads to meaningful support rather than passive monitoring (Broglia & Barkham, 2024; Foster, 2026).

A further direction is to examine equity impacts. International students, late-arriving students, students from non-computing backgrounds and students balancing work or caring responsibilities may experience IT learning stress

differently. Future studies should explore how inclusive and data-informed teaching practices can be tailored to these groups without lowering academic standards. The aim should be to maintain rigour while reducing unnecessary barriers to participation.

## 8. Conclusion

This paper has presented a practice-based case study of inclusive and data-informed teaching practices designed to support student mental health in computing and data education. The evidence suggests that students valued clarity, structure, practical examples, timely feedback, respectful communication and proactive support. These practices appeared to reduce uncertainty and increase confidence, although the study does not claim causal impact on clinical mental health outcomes.

The broader contribution is a transferable framework for wellbeing-oriented computing education. Rather than positioning mental health as an external issue handled only outside the classroom, the paper argues that teaching practice can reduce avoidable academic stress. In IT subjects, where complexity and uncertainty are inherent, educators can support wellbeing by making challenges visible, structured and connected. The CLEAR model offers one practical way to design for this: clarify expectations, layer complexity, enable help-seeking, act rapidly on feedback and review engagement data. In doing so, computing educators can contribute to learning environments that are not only intellectually rigorous but also more compassionate, inclusive and sustainable.

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