

A GUIDE TO USING AGENTIC PERSONAS TO ASSESS DISPOSITIONS IN COMPUTING COURSES

WHY COMPUTING COURSES NEED MORE THAN KNOWLEDGE AND SKILLS

In real-world computing practice, success depends not only on what students know or can do, but also on how, when, and why they choose to use their knowledge and skills when a situation calls for them. These patterns of behavior are shaped by dispositions. Dispositions influence how individuals enact their knowledge and skills effectively in practice, such as being persistent, collaborative, adaptable, and self-directed when solving real-world problems.

However, while dispositions are important, they can be difficult to assess because they are not always visible in a final product, test score, or completed assignment. *The Agentic-Persona Framework, based on Tubino and Cain (2024), helps instructors make those patterns visible.* Instead of treating grades as only points, the grade describes a developmental story about student agency.

WHY THIS MATTERS

Two students submit the working code. One follows the template exactly but cannot explain trade-offs. The other student tests alternatives, documents decisions, and asks peers for feedback. *A traditional score may miss this difference; a persona-based rubric can make it visible.*

WHAT IS AN “AGENTIC PERSONA”?

A persona is a short, story-based description of *how a student tends to act at a particular developmental level.* It is not a label for the student as a person. It is a way to describe the level of agency shown in a specific course task.

Instructors can use personas to describe what “Pass,” “Credit,” “Distinction,” or “High Distinction” means in observable terms. The goal is to help students understand what growth looks like and choose the level of challenge they want to pursue.

Entry	Developing	Agentic
Follows structure	Connects ideas	Defines problems
Needs clear guidance	Responds to feedback	Finds resources
Shows responsibility and care	Collaborates and takes initiative	Evaluates and improves independently

Mini-vignette: Intro programming

Entry: completes a provided debugging task with step-by-step prompts.

Developing: explains why the bug happened and improves the code with some guidance.

Agentic: identifies additional edge cases, finds documentation independently, and justifies the final design.

HOW TO USE THE FRAMEWORK IN YOUR COURSE

Step	What the instructor does	Simple computing-course example
1. Define personas	Translate each grade level into observable behavior. Align the dispositions with your program or DEAP disposition list.	In a data structures course, define what being responsible, collaborative, adaptable, and self-directed work looks like in coding, testing, and documentation.
2. Build the rubric	Use the personas to write rubric descriptors. Each level should show a different amount of agency, not just “more work.”	Pass = uses provided tests; Credit/Distinction = adds relevant tests; High Distinction = designs a testing strategy and explains limitations.
3. Design tiered tasks	Create tasks with different levels of scaffolding. Students complete the tasks connected to the grade they are targeting.	Lower levels include templates and examples. Higher levels require students to locate resources, make design decisions, and defend their choices.

Mini-vignette: Cybersecurity ethics

A student analyzes a breach scenario. Entry-level work identifies the obvious rule violation. Developing work explains stakeholder impacts and responds to peer critique. Agentic work proposes a prevention plan, evaluates trade-offs, and connects the decision to professional responsibility.

DESIGN PRINCIPLE: ADJUST THE SCAFFOLDING

For entry-level tasks, give structure: worked examples, checklists, templates, and direct feedback. For developing tasks, reduce the support and ask students to explain decisions. For agentic tasks, remove most of the content support and position the instructor as a sounding board rather than the source of every answer. This keeps the assessment fair for beginners while still creating “no ceiling” opportunities for students who enter with prior experience or higher confidence.

A SIMPLE TEMPLATE YOU CAN ADAPT

Persona	Student story	Observable evidence	Possible grade meaning
Entry	"I can complete the task when expectations are clear."	Follows instructions, documents work, uses provided resources responsibly.	Pass
Developing	"I can make choices and improve my work with feedback."	Explains decisions, collaborates, responds to critique, connects concepts.	Credit / Distinction
Agentic	"I can define the problem, plan my approach, and justify my decisions."	Seeks resources independently, adapts strategy, evaluates outcomes, creates original solutions.	High Distinction

Mini-vignette: Capstone software project

A team builds an app for a client. Entry-level evidence may show professional communication and completion of assigned tasks. Developing evidence may show responsiveness to user feedback and effective collaboration. Agentic evidence may show self-directed planning, adaptation when requirements change, and evaluation of the final solution against user needs.

REFERENCES

Tubino, L., & Cain, A. (2024). *Fostering and assessing dispositions by providing grades a meaning in a computing education context*. In *Proceedings of the 2024 Innovation and Technology in Computer Science Education V. 1 (ITICSE 2024)*, 7 pages. ACM. <https://doi.org/10.1145/3649217.3653616>