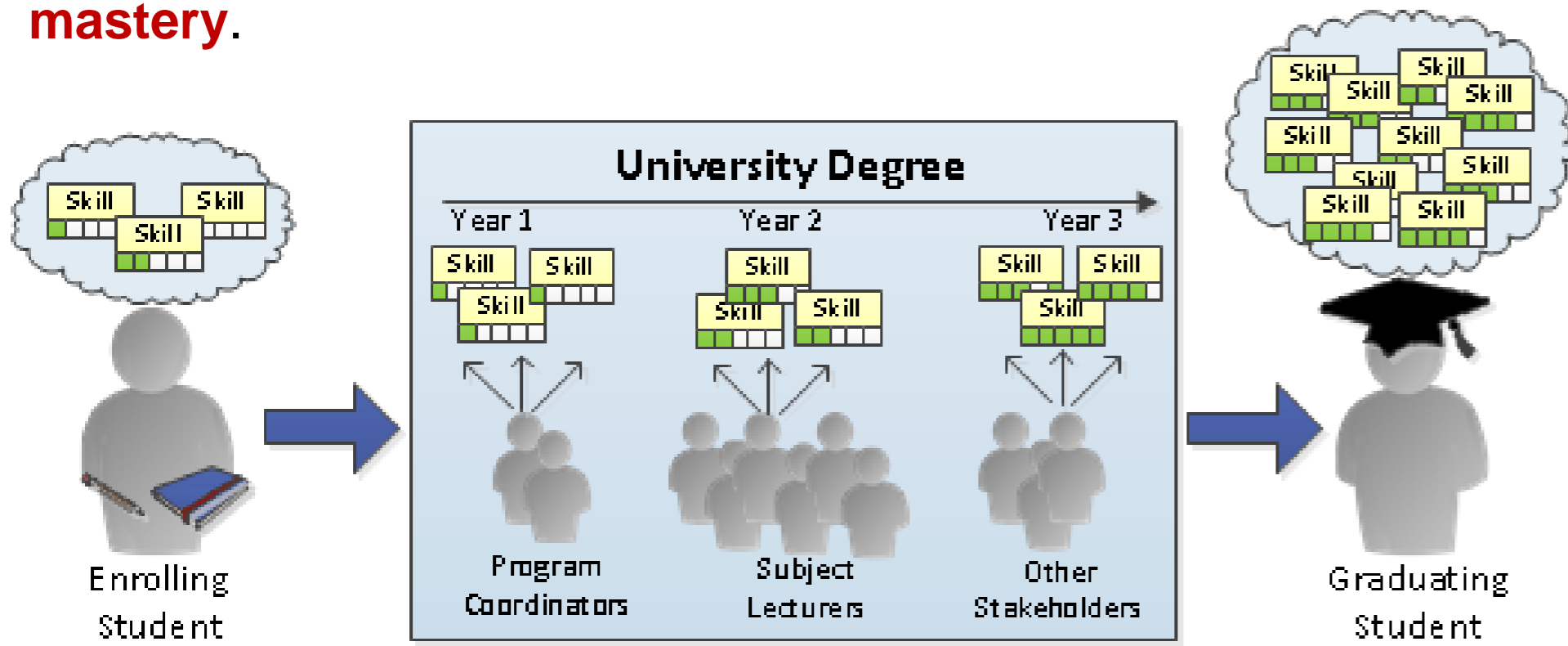


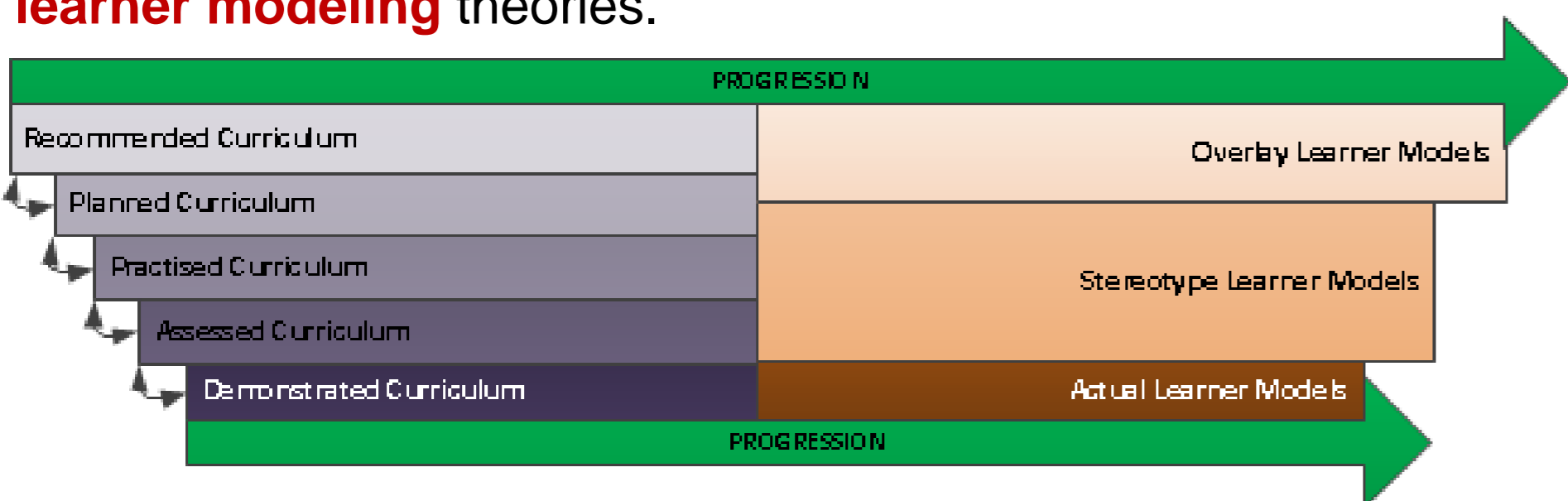
## PROBLEM

University degrees aim to teach **generic transferrable skills** as well as **fine-grained discipline specific knowledge**. Students must acquire these skills and knowledge in a **progressive sequence** over the 24 or more subjects of a typical three to five year degree program. Students, lecturers, program coordinators, curriculum reviewers and employers must all be able to have a **shared understanding** of exactly what is being **taught**, how it is **assessed**, how much of it is being **learnt** and at what **level of mastery**.



## APPROACH

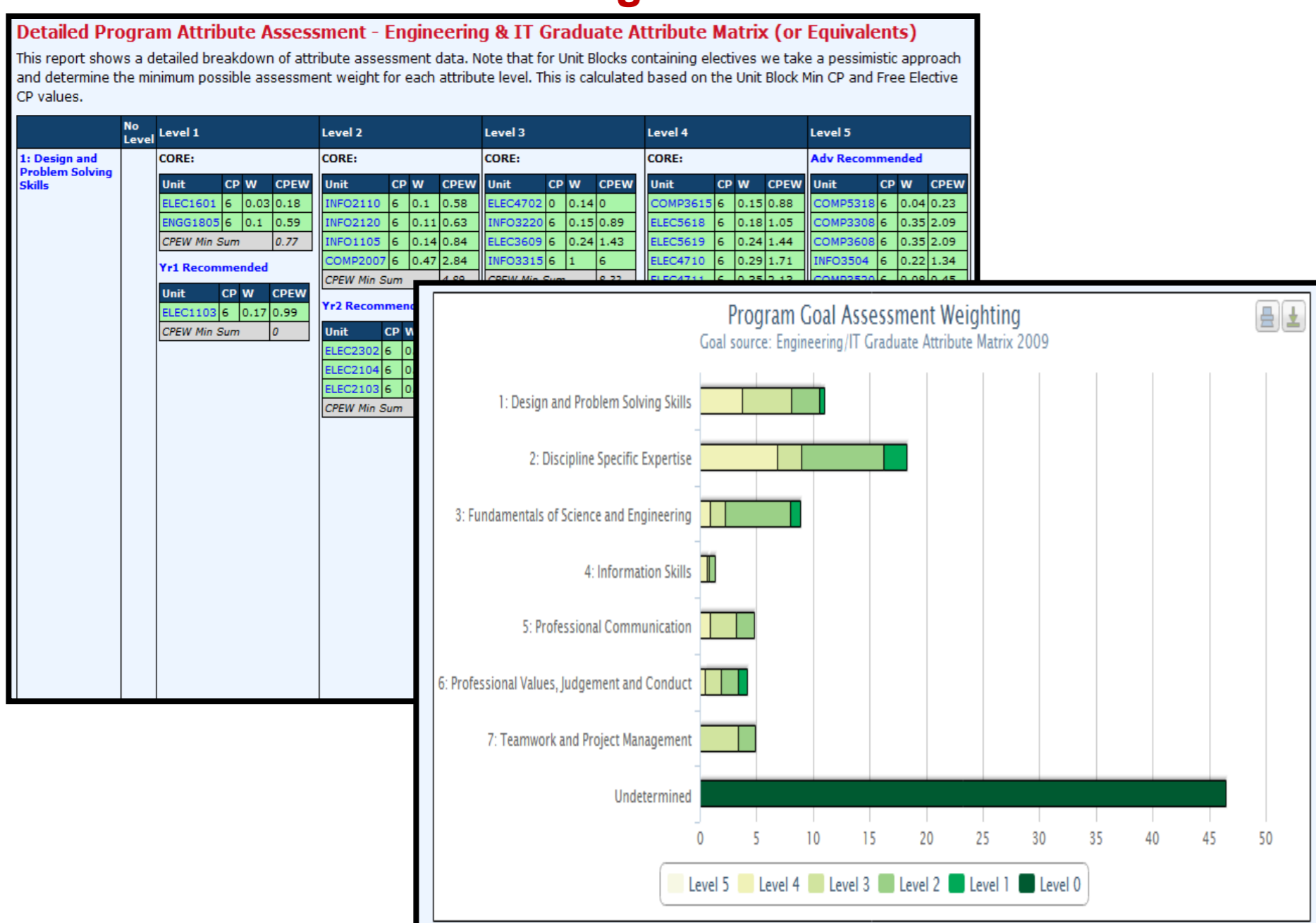
We aim to create **shared ontologies** of the **learning goals** and **mastery levels** to model **long-term learning progression** across a degree. We use these ontologies to **systematically** track the teaching, learning and assessment activities across subjects. The approach is founded on **curriculum mapping** and **learner modeling** theories.



We define **overlay**, **stereotype** and **actual learner models** to capture the **teaching intention**, **learning expectation** and **demonstrated performance** across the whole curriculum. Educational stakeholders are able to **introspect** and **reflect** on these open learner models to **review** and **improve the curriculum**.

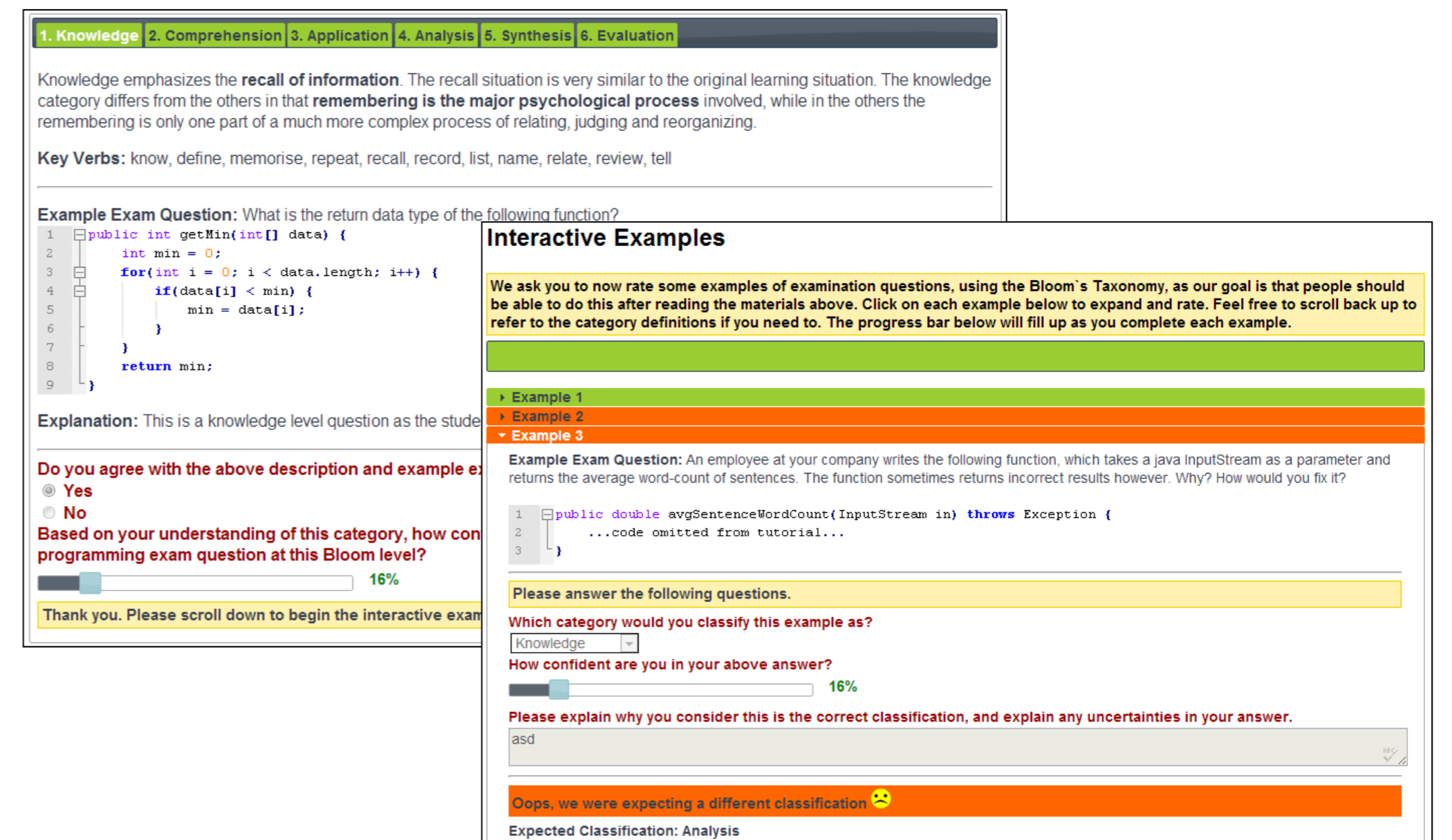
## CONTRIBUTION: SCALABLE HIGH-LEVEL SKILL ONTOLOGY

We implemented and deployed CUSP (Course and Unit of Study Portal), which is currently **used lived** at the University of Sydney to map graduate attributes and discipline competencies across **200+ degrees** and **2000+ units of study**. CUSP provides live big-picture visualizations and reports in terms of the teaching and assessment of **diverse learning standards**.



## CONTRIBUTION: SHARED UNDERSTANDING OF MASTERY

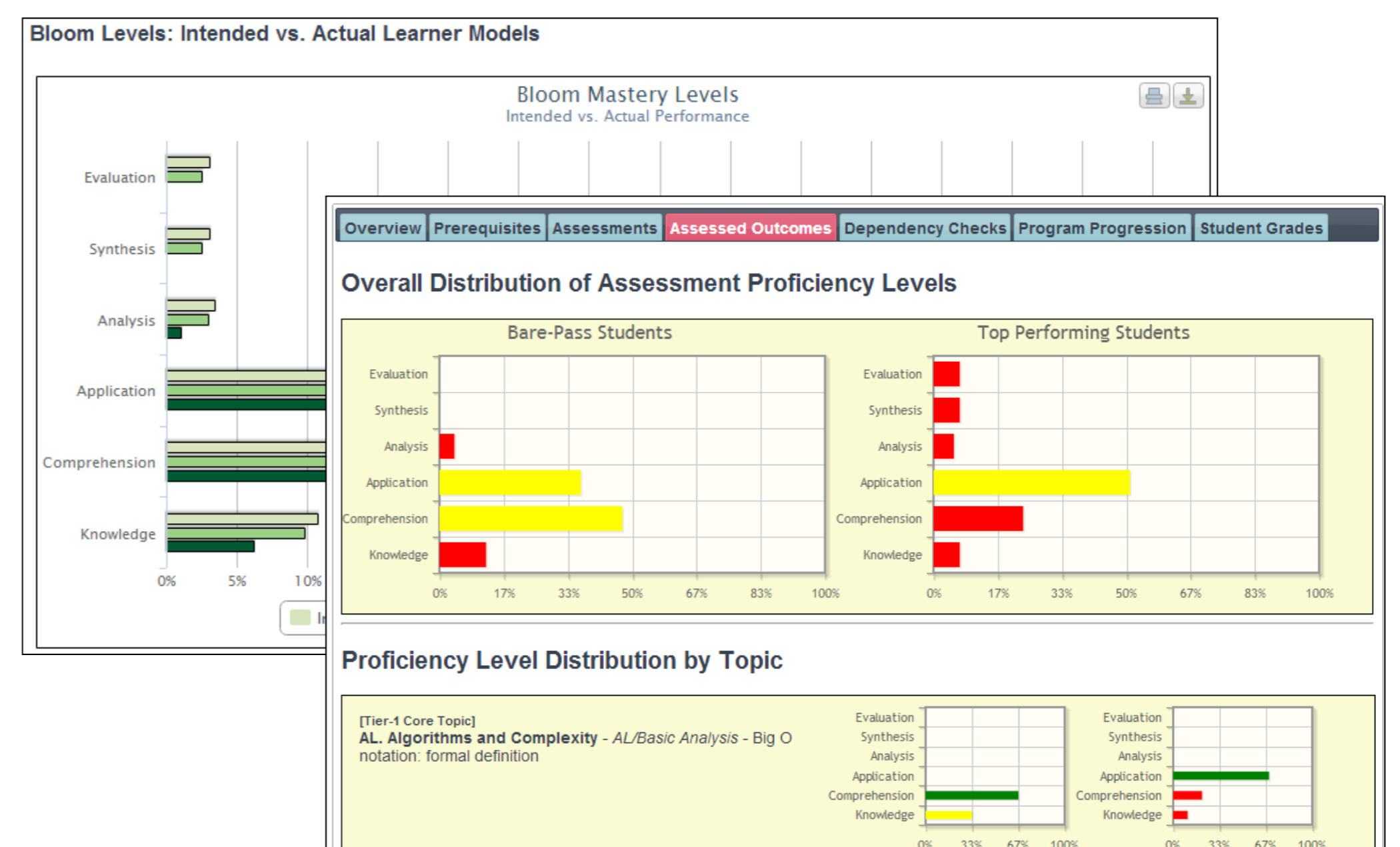
To **effectively model progression** of fine-grained skills across the curriculum, educators must have a **shared and comparable understanding of mastery and difficulty levels**. We developed a **web-based interactive tutorial** system (<http://progoss.com>) utilizing self-reflection and meta-cognition to **effectively train educations** into using Bloom's Taxonomy, Neo-Piagetian Development Theory or other generic classification schemes to consistently code the difficulty of assessment questions.



## CONTRIBUTION: EXPECTED VS. DEMONSTRATED LEARNING

We constructed **fine-grained stereotype** and **actual learner models** to map the **fine-grained discipline specific knowledge** that is **assessed across multiple subjects** of a degree. This enables educators to design assessments in terms of **minimal expectations** (bare-passing students) as well as **aspirational expectations** (top-performing students). Educators can visualize, share and reflect on these stereotype models to **ensure effective learning design**.

Additionally, the implementation allows importing of fine-grained **itemized student assessment marks** to construct **detailed actual learner models** which can be visualized from multiple perspectives, allowing educators to **fine-tune assessment and learning activities**.



## FURTHER DETAILS

### Contacts:

- Judy Kay ([judy.kay@sydney.edu.au](mailto:judy.kay@sydney.edu.au))
- Richard Gluga ([richard@gluga.com](mailto:richard@gluga.com))

### Publications:

- <http://goo.gl/0Su0l>

### Demo Site:

- <http://progoss.com>



THIS RESEARCH IS SPONSORED BY