



An Outcome-based Dashboard for Moodle and Open EdX

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Outcome-Based Learning Progress

- LMS record **learners' interactions** with course components → monitor students' progress in near real-time
- Outcome-based learning** → visualize learning progress

Teachers

- To identify at-risk students
- To implement interventions

Students

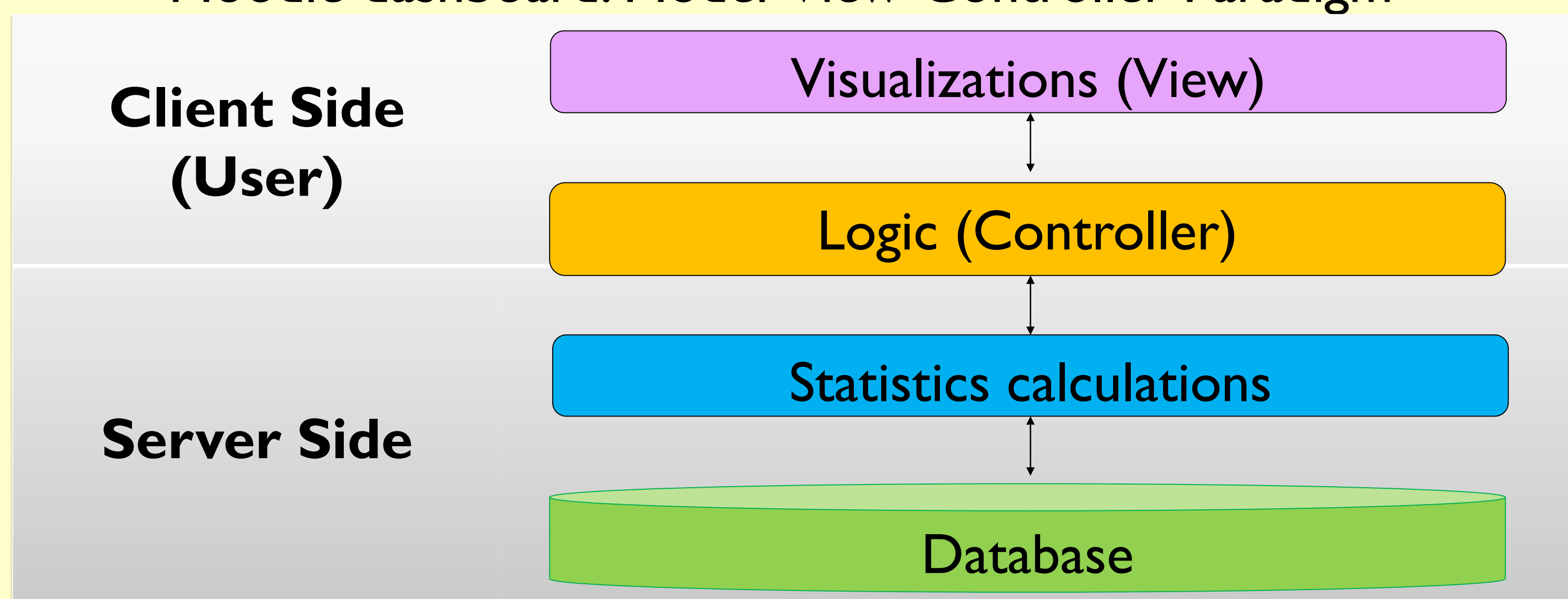
- Self-monitoring
- Self-assessment

Evaluation of the Dashboard

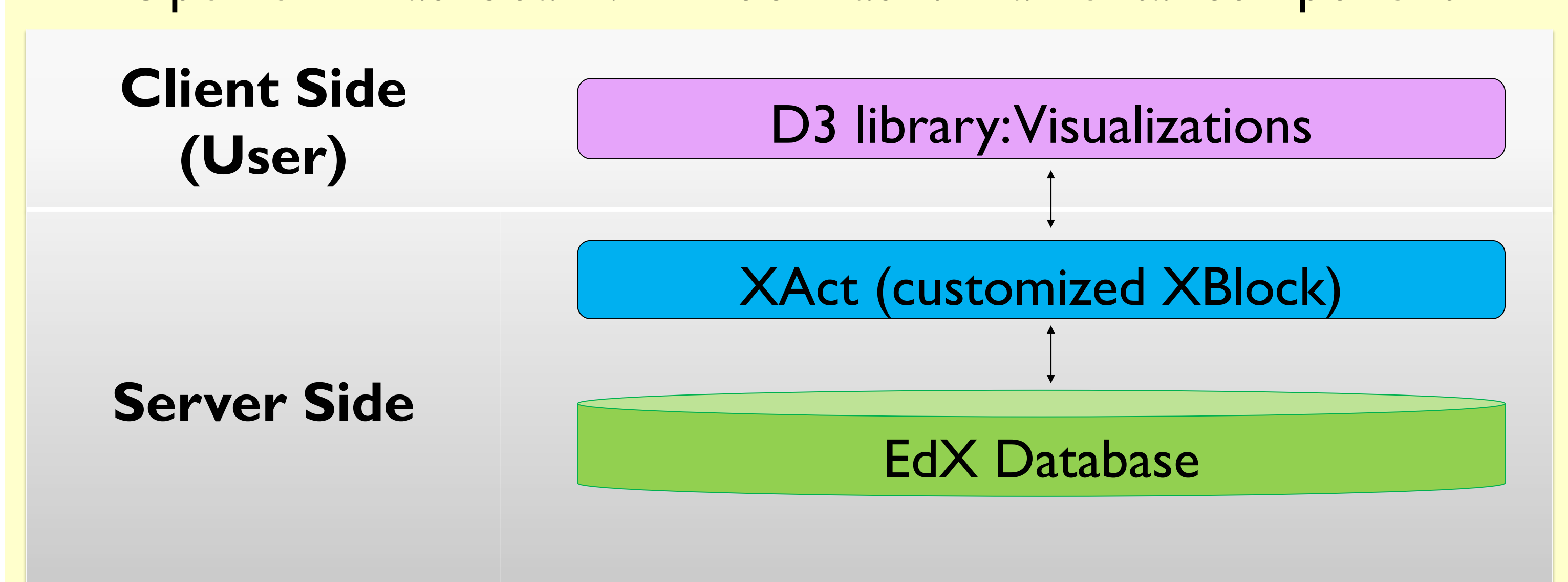
- Moodle: used in 3 general education courses
 - instructional video + pre- and post-surveys + follow-up interviews
- Open edX: deployed in a technological general education course
 - 89 /120 students' accessed 711 times within 8 days
 - Checked dashboard for 1.71 minute on average
 - Views of peripheral videos ↑ significantly after implementation
 - Survey and interview data currently under analysis

System Architecture

Moodle dashboard: Model-View-Controller Paradigm



Open edX dashboard: "XBlock" as fundamental component



Analytical Functions

- Teachers link **course components** to **course outcomes**

Moodle

- On HTML block page
- Student actions, e.g., *view, submit, create, start*

Open edX

- On XBlock edit mode
- Click streams, e.g., *video interactions, page reading, etc.*

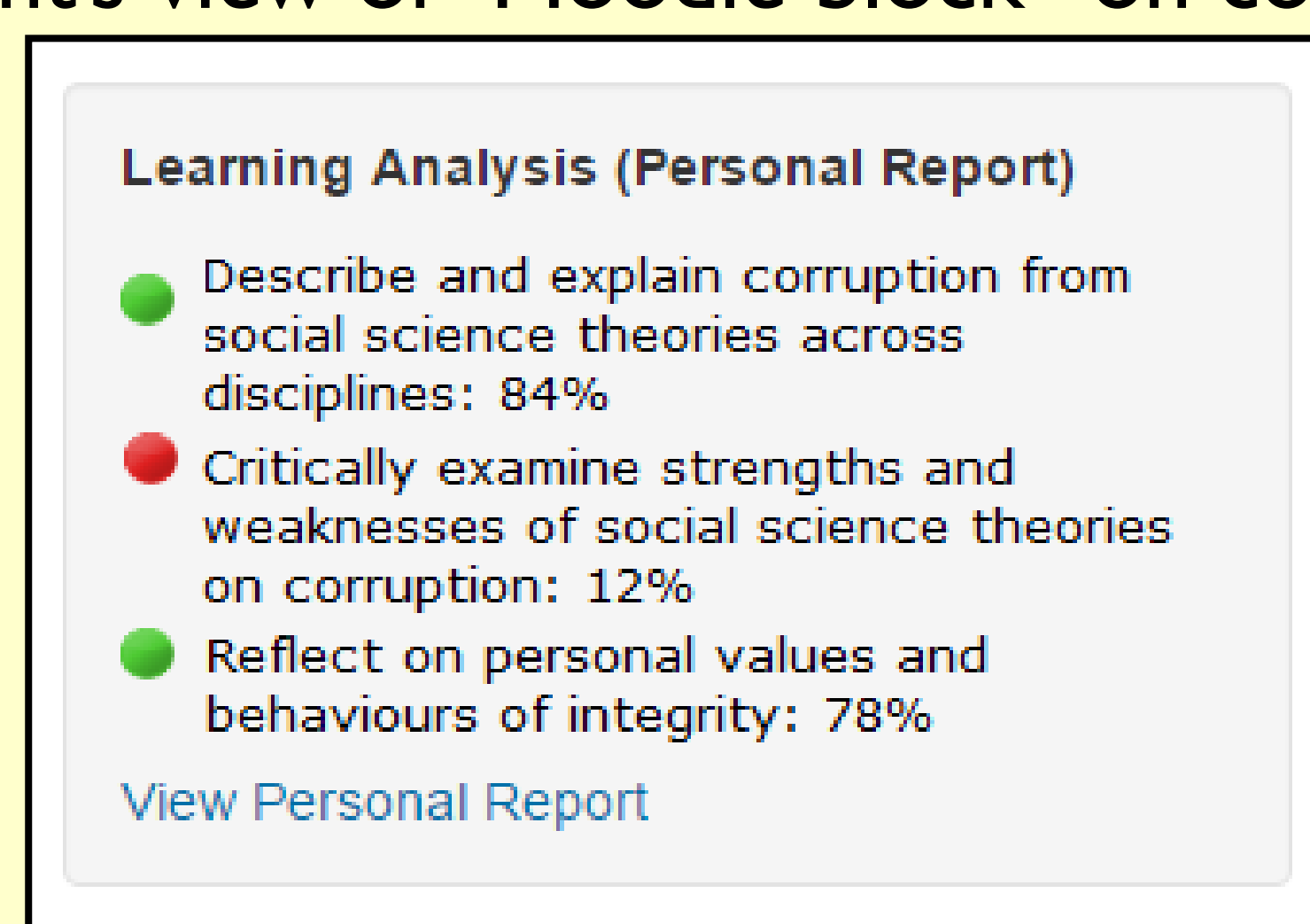
→ learning progress = calculated in a relative manner for visualizations;

- Progress towards a learning outcome = **aggregation** of progress scores of all outcome-linked components
- Prevention from "gaming" the system through **restrictions** on frequency of actions performed on components

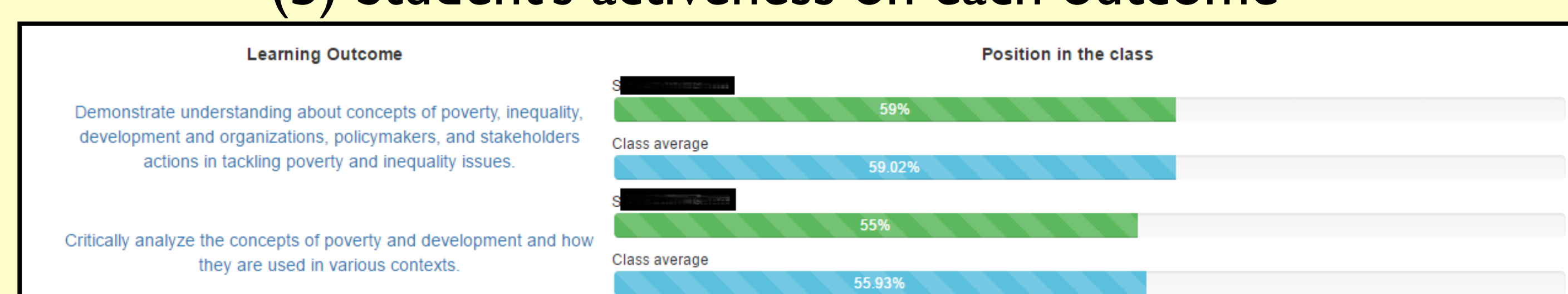
Visualizations

1. Progress Towards Learning Outcomes (Moodle)

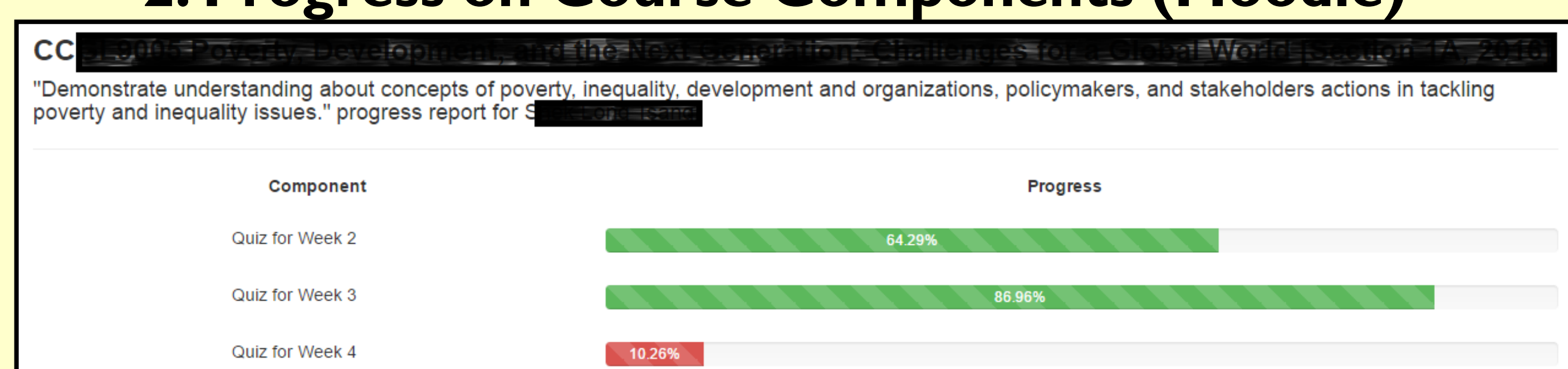
(a) Student's view of "Moodle block" on course page



(b) Student's activeness on each outcome



2. Progress on Course Components (Moodle)

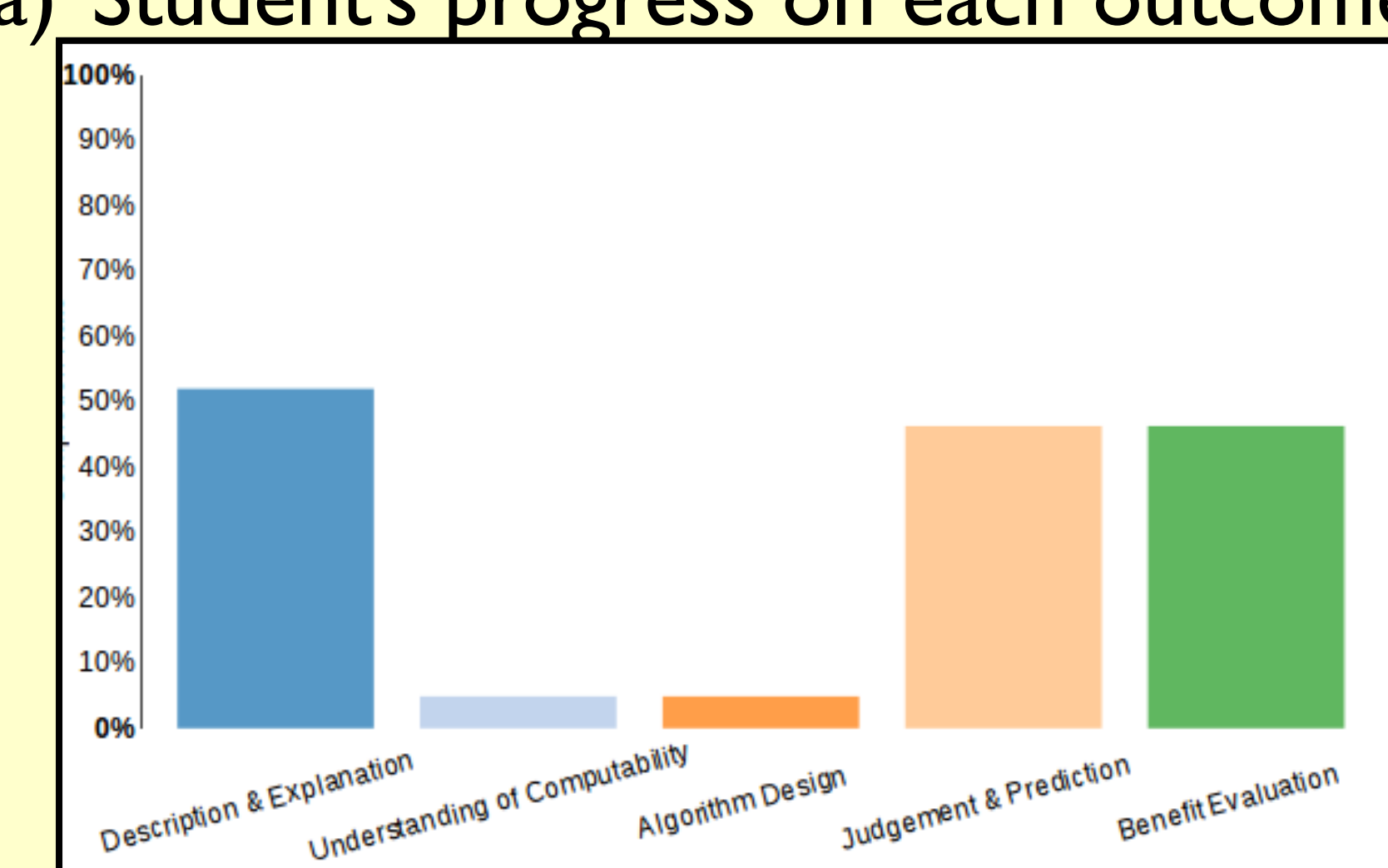


3. Teachers' View (Moodle only)



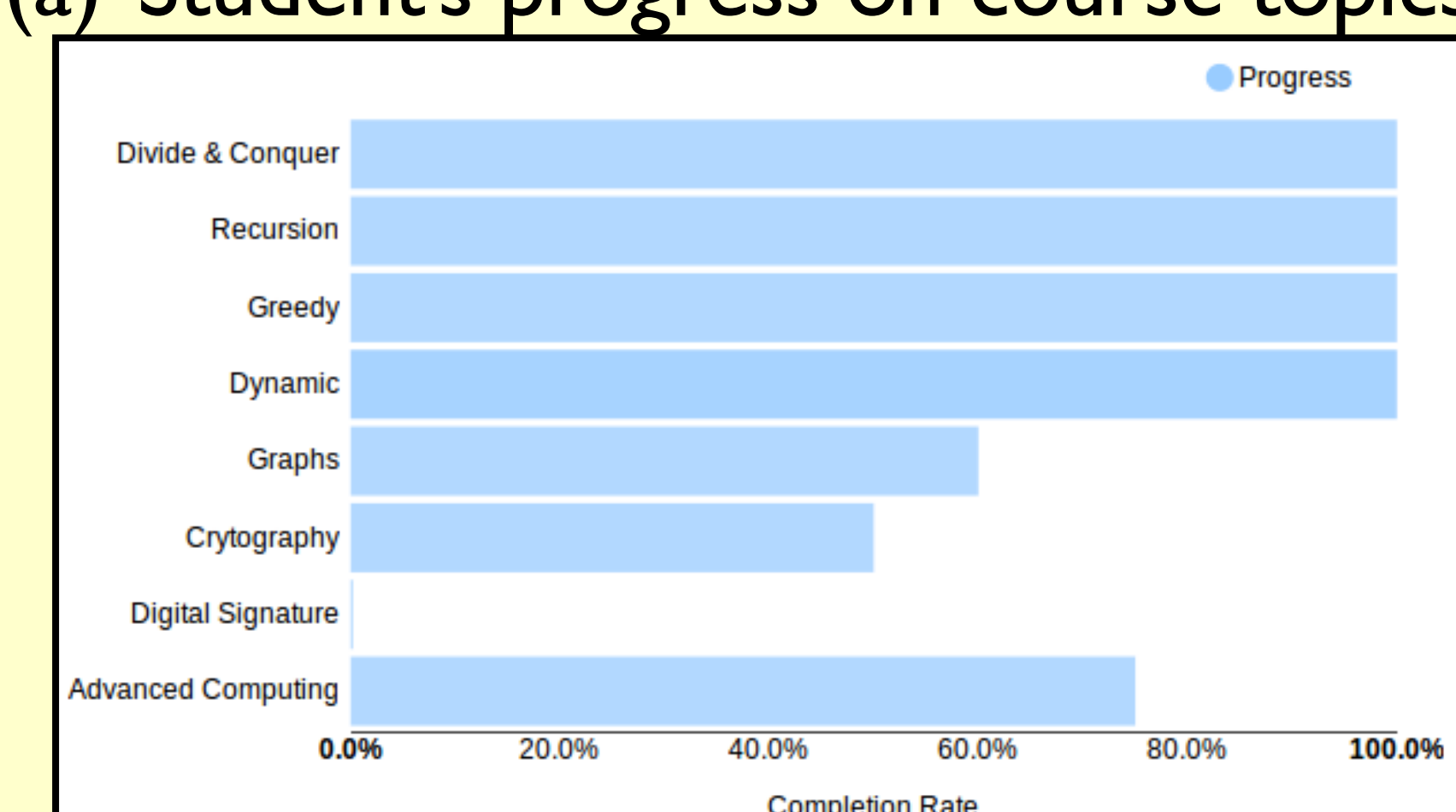
1. Progress Towards Learning Outcomes (Open edX)

(a) Student's progress on each outcome



2. Progress on Course Components/Topics (Open edX)

(a) Student's progress on course topics



(b) Student's distribution of activities on main course components

