

HackEd: A Pedagogical Analysis of Online Vulnerability Discovery Exercises

Daniel Votipka, Eric Zhang, and Michelle L. Mazurek



Research Questions

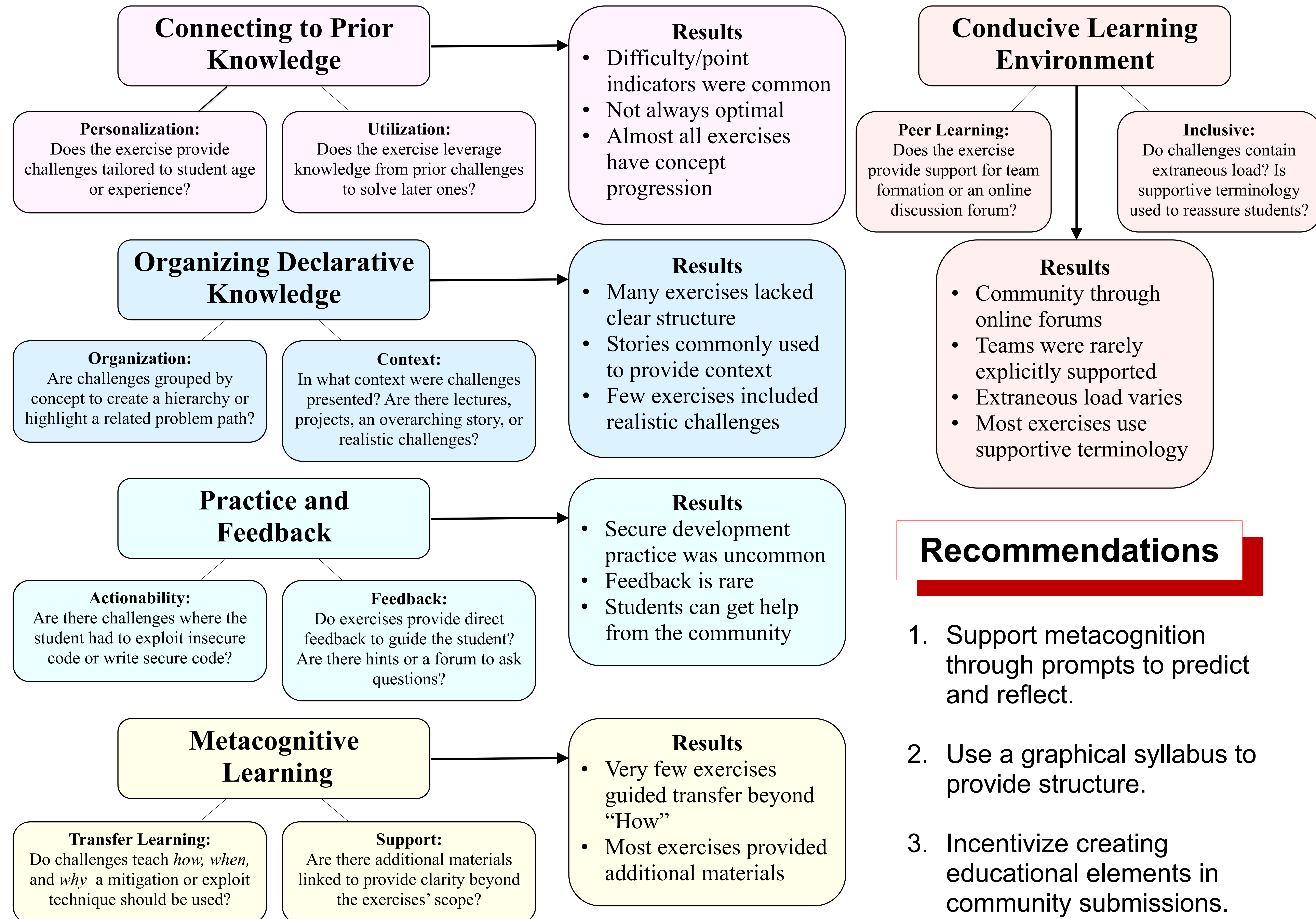
Do hacking exercises follow pedagogical best practices?

What challenges do exercise organizers face when applying these principles?

Exercise Criteria

- Educational** – Intended to teach, not purely competitive
- Hands-on** – active practice
- Online** – publicly accessible
- Popular** – Tranco/Alexa rank

Pedagogical Dimensions



Recommendations

1. Support metacognition through prompts to predict and reflect.
2. Use a graphical syllabus to provide structure.
3. Incentivize creating educational elements in community submissions.

