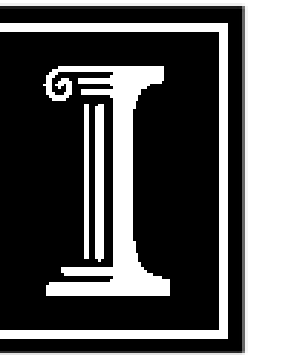


Developing communication skills in engineering students at a large research university: an evaluation of current methods in the context of writing studies

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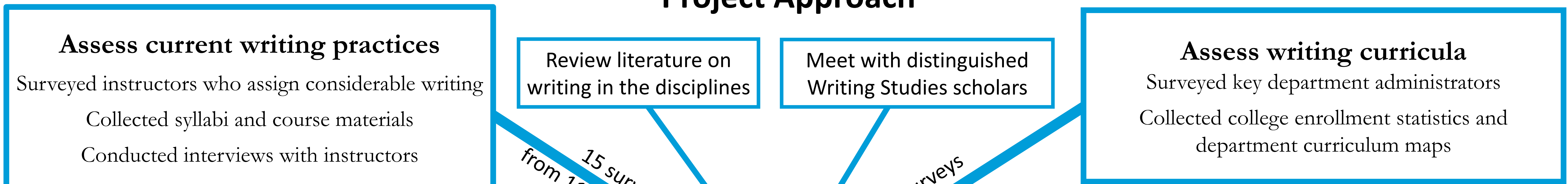
Motivation

Good communication skills are critical for engineering students to excel after graduation, but challenging to develop in the curriculum. Our team sought to assess current writing instruction across departments in the College of Engineering.

- Characterize writing instruction across the College of Engineering
- Synthesize relevant work in Writing in the Disciplines
- Identify best practices and recommendations for effectively and efficiently improving our students' writing

Objectives

Project Approach

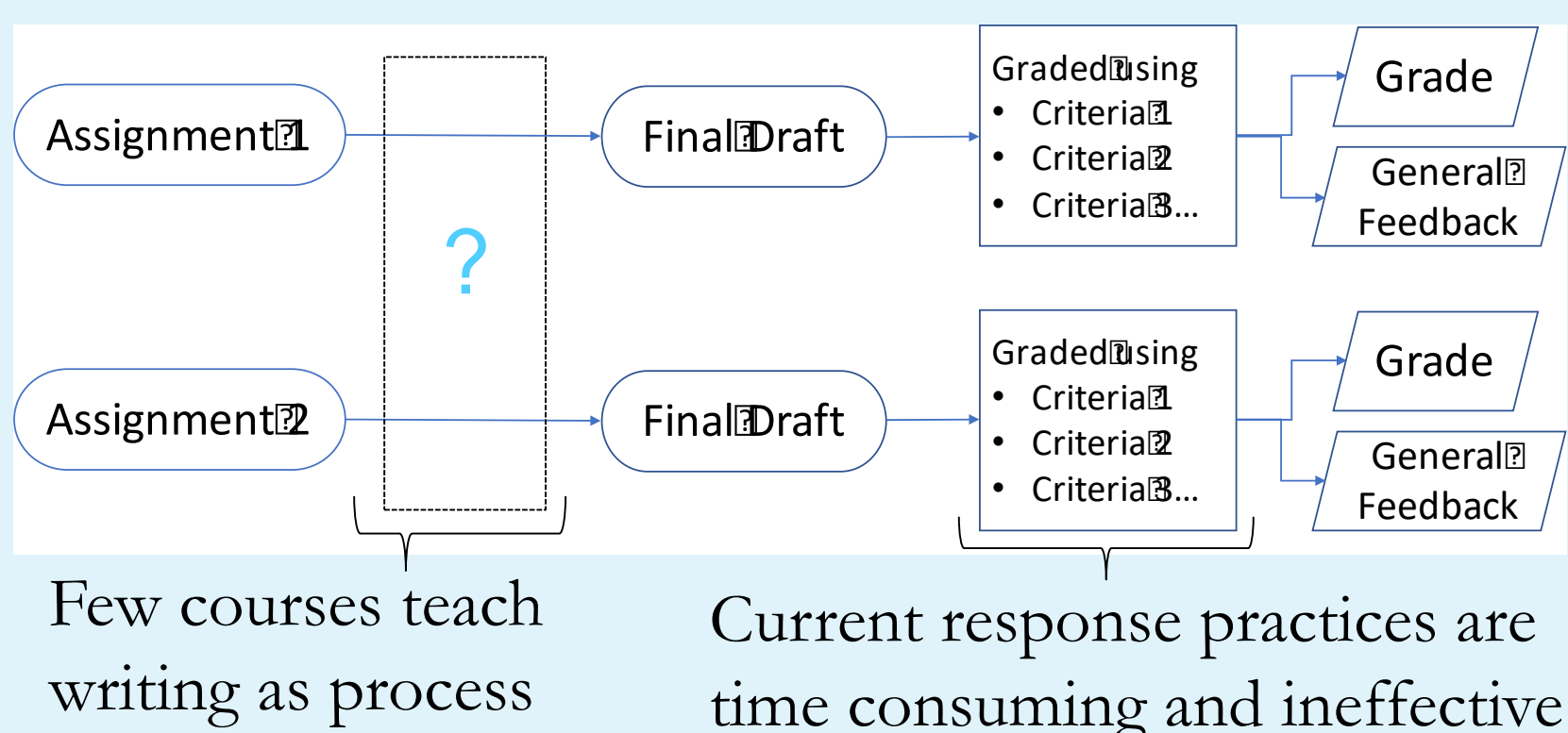


Instructional Findings

Instructional Challenges Identified

- Student attitudes/engagement
- Training TAs
- Time constraints
- Differences in student needs, preparation, and language backgrounds
- Balancing writing instruction and content
- Assignment design/scaffolding

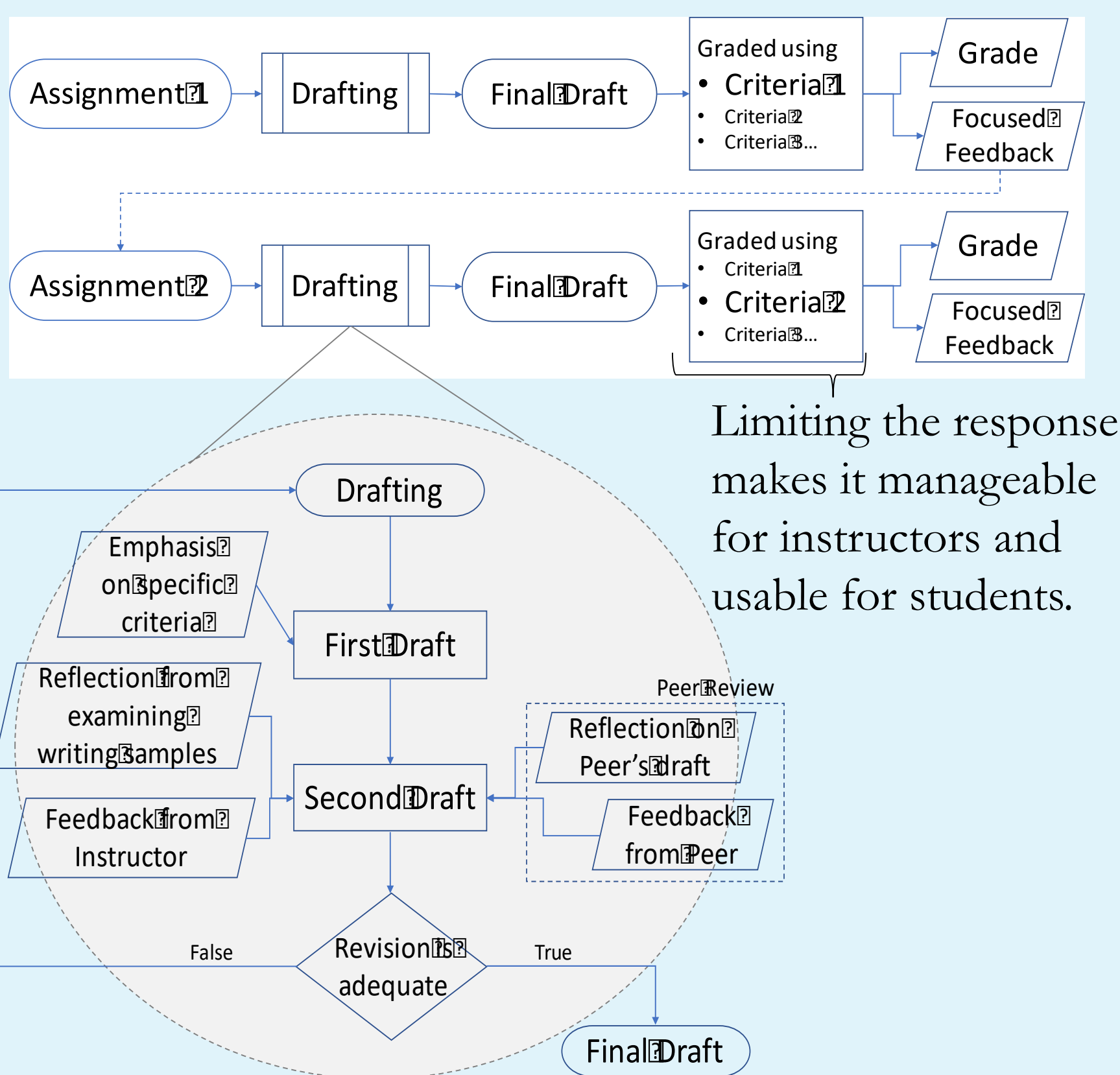
Common current response pattern



Applying Best Practices

- Assignment design & sequencing
- Writing process instruction
- Response and grading

Rolling response focus in repeated genres



Findings

Engineering faculty recognize that writing is important for engineers and that improvements are needed.

Surveys suggest students are likely to use a wide range of professional writing genres after graduation, but are exposed to few professional genres as undergraduates.

Instructional Genres	Genres expected to use after graduation
Presentation	Project reports, Email, Progress reports
Quiz	Documentation of protocols, Executive summaries
Team written reports	Conference proceedings, Conference presentations
Exam	Technical memoranda, Abstracts, Journal articles, Posters
Lab reports	Planning reports, Instruction manual, Grant proposals
Abstracts	Recommendations, Lab reports, Lectures, Reports to regulatory agencies
Progress reports	Training manuals, Patent whitepaper, Research highlights for the web, News articles
Email	Professional uses of social media, Blogs, Press releases, Referee reports, Lab pages
Project reports	

In the current curriculum, we find both innovative approaches to teaching engineering writing from which to build, and ways in which our curriculum and instruction do not align with writing studies' best practices for writing development.

Key opportunities

- Teaching writing as a process,
- Embedding writing instruction in technical coursework,
- Including more professional genres, and
- Teaching for genre flexibility.

Future Directions

Implementation	<ul style="list-style-type: none"> • Educate faculty about best practices, beginning with those already teaching writing-intensive courses • Provide support for faculty to develop course-specific implementations
Experimentation	<ul style="list-style-type: none"> • Experiment with assignment design and response that allow writing instruction at large scale • Experiment with vertical writing curriculum
Research	<ul style="list-style-type: none"> • Develop best practices for teaching for genre flexibility • Investigate ways to leverage extracurricular activities to provide meaningful writing experience

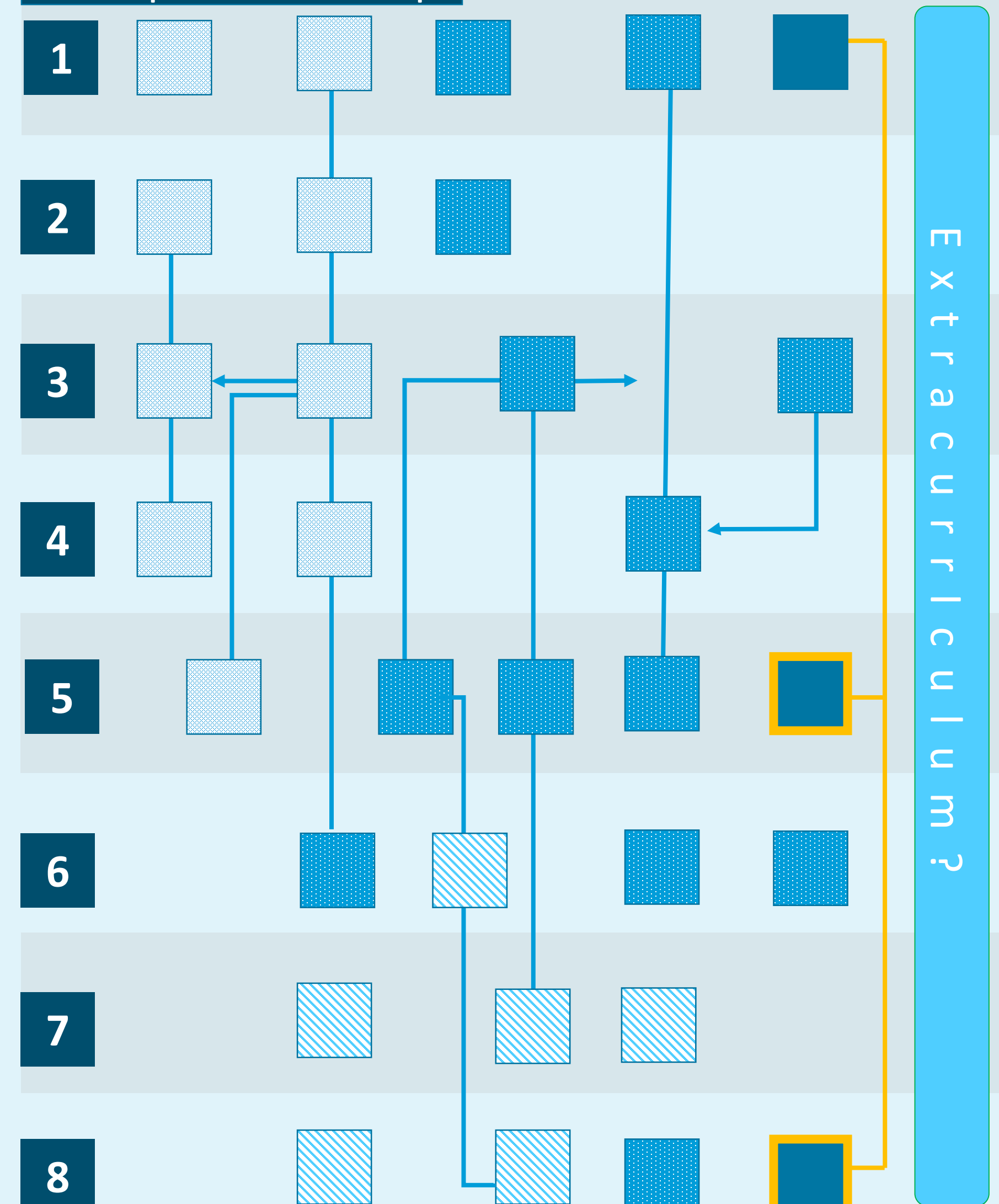
Curricular Findings

Curricular Challenges Identified

- Faculty motivation and prior training
- Lack of coordination across the curriculum
- Scale
- Differences in student career paths
- Packed curriculum

Focused work on writing occurs in few courses and primarily at the end of the curricula.

Example course map



- Supporting math/science
- Technical elective
- Core disciplinary content
- Focused disciplinary writing instruction

Supporting Best Practices

- Vertical writing curriculum
- TA training/support
- Coordinating sharing of support materials across courses
- Developing a community of practice across the college