The Faculty Inquiry Network

Basic Skills in Complex Contexts

Developing Students' Critical Thinking: A Conversation Across Disciplines

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Strengthening Student Success Conference 2010

Introductions and Overview

Mt. SAC FIN Project

The Evolution of Critical Thinking on Geology Field Trips

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Our Inquiry

How can we teach students to use existing knowledge to think critically and make accurate interpretations in the field?

Project Overview

- In class, students seemed to understand geologic concepts and could identify rocks and minerals
- However, they struggled transferring that knowledge to the field environment
- Used video, interview, and written data to identify common problems and modify our classroom and field instruction

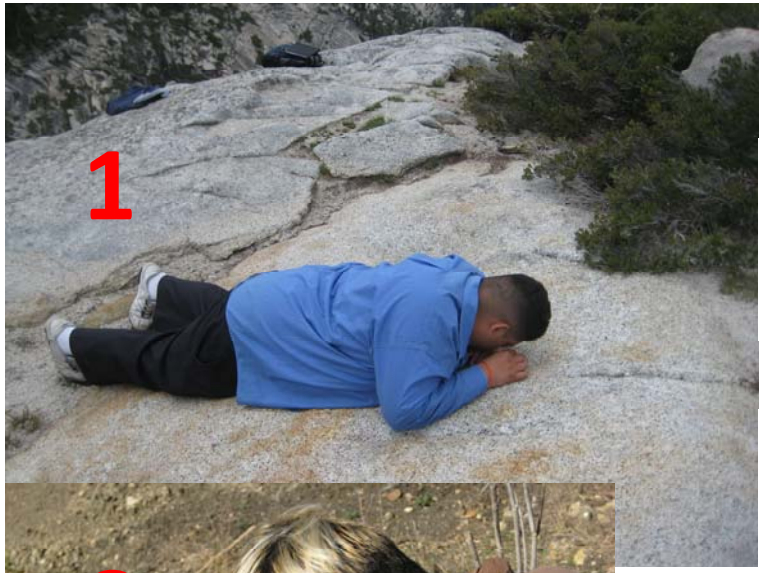
Strategies Used "In the Beginning"

- More guidance and explanations provided in the field
- Prompt students with questions at geologic outcrops
- More in-class preparation prior to field trips

Realization #1: Some field trip instructional methods hinder critical thinking.

- Inadequate wait time (translates to inadequate think time)
- Too much peppering (rapid questioning)
- Lecturing
- Spending too little time at an outcrop

Realization #2: Students need more models and repetition in the classroom to prepare for the field.



Examples:
1: Video tutorials of outcrop analysis
2: Field notebook guides
3: Student co-inquirers

Strategies used in the "Middle Ages"

- Allow students more think time
- Embrace the concept of using student co-inquirers
- Teach students to ask themselves a series of questions to discover the correct answers

Strategies used "Today"

- Repetition of concepts
- Better utilization of co-inquirers
- Thinkalouds
- More processing time
- No lecturing
- In some cases, instructor walks away from the outcrop

Results: Students

- Students have become empowered to make their own interpretations.
- Students have a richer understanding of geologic concepts.
- Students can apply classroom knowledge to unfamiliar field environments.
- Students exhibit improved critical thinking in the field.

Results: Faculty

- Major shift in teaching philosophy and instructional strategies
- Interaction between faculty, students, and co-inquirers has changed significantly.
- Faculty trust students to make interpretations.
- Faculty are no longer vital components of critical thinking in the field.
- Faculty realize that inquiry is an iterative process.
- Video is an effective research and assessment tool.

Glendale FIN Project

Glendale Community College

A team of three Glendale College faculty members from ESL, Natural Sciences, and Social Sciences will use the incremental classroom to strengthen student outcomes. Building upon a prior initiative in the English department, participating faculty hypothesize that developing formative assessments, such as low-stakes web quizzes with instructor feedback codes, will help students engage course content more successfully. The faculty team envisions two primary directions for this work. First, they plan to use modules to guide students as readers within the discipline, helping them move them beyond a typical novice approach of looking for answers that can be memorized and toward a more expert reading that establishes a relationship between the reader and author. Second, they envision using this approach to strengthen students' analytic skills and conceptual understanding. Their primary inquiry: How does the incremental classroom impact student learning, engagement, success, and persistence?

Team Leader:

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Team Members:

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Paul Vera / ESL
Jennifer Krestow / Astronomy
Cameron Hastings / Political Science
Chris Juzwiak / English

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http://courseweb.glendale.edu/thefullemersion/

faculty inquiry network

FIN Commons | Home Page

The Full *E*-mersion

Advanced Electronic Pedagogy for Developmental English

Home Page

Home | Discussion | Links

New from Glendale Community College in Glendale, California

- The Proposal
- The Participants
- The Place
- Phase 1
- 1st Semester
- 2nd Semester
- Carnegie Foundation
- The SPECC-taculars

Don't Just SIT There--* *Get Involved!

Contact our research team with ideas or questions; join our discussion board; download PowerPoint slides and WebCT course materials; send us your innovations!

The Full ***E***-mersion is a SPECC grant project funded by the Carnegie Foundation in partnership with the William and Flora Hewlett Foundation.

The Full ***E***-mersion pedagogy incorporates a new generation of electronic and web-based instructional materials to promote deep and lasting learning in Developmental English students.

Involving faculty and student researchers, the grant work undertakes a sustained evaluation, revision, and dissemination of this prospective signature pedagogy in Developmental Composition.

"The computer technology in this English class is the best educational experience I have ever had."

--Nadya Garcia, Student

Did technology help students learn the

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English 120 at GCC (pre Freshman-level composition)

- Breaking down the writing process into multiple, manageable steps
- Using multiple means of assessing student work
- Providing near immediate feedback on student work
- Integrating technology into the classroom to enhance student engagement

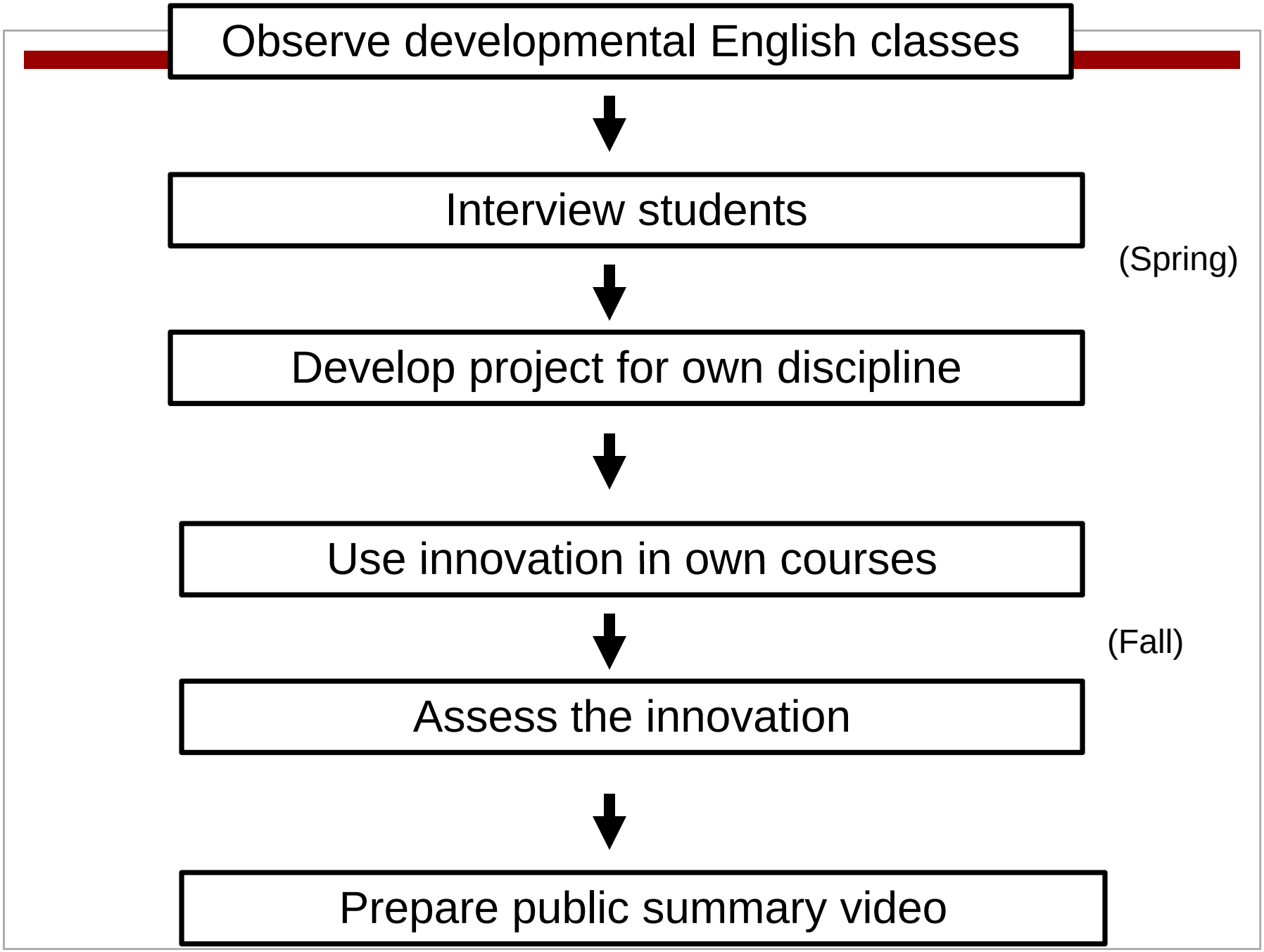
Glendale FIN Projects

2009

- Political Science- Cameron Hastings
- ESL- Paul Vera
- Astronomy- Jenny Krestow

2010

- History- Hazel Ramos
- Math- Tom Voden
- Spanish- Stacey Jazan


Observe developmental English classes
Interview students
(Spring)
Develop project for own discipline
Use innovation in own courses
(Fall)
Assess the innovation
Prepare public summary video

Enhancing Critical Thinking Through Guidance and Incrementalization

- Hazel Ramos, History: Using templates drawn from English 120, Ramos encourages students to move 'beyond the summary' of a primary historical document.
- Jennifer Krestow, Astronomy: Using templates drawn from English 120, Krestow guides students to use the scientific method to inquire into scientific topics such as "Atoms" or "Thermonuclear Fusion".
- Stacy Jazan, Spanish: Using essay structure and development ideas from English 120, Jazan reconceptualizes students' first composition in Spanish into a template students can apply to their own work.

Enhancing Critical Thinking Through Guidance and Incrementalization

- Tom Voden, Mathematics, Using an incrementalized approach from English 120, Voden designs new discovery activities for math classes which encourage students to think, predict, and share the results of mathematical experiments.
- Cameron Hastings, Political Science: Using strategies for finding and analyzing evidence and instructor comment codes from English 120, Hastings reconceptualizes how students find, document, and apply evidence for final projects—and how she comments on those projects.
- Paul Vera, Credit ESL: Using comment codes from English 120, Vera revises the written comment codes he uses on student essays.

The Future: Professional Development and Institutionalization

- Sharing work with departments and divisions
- Sharing work with college faculty at large and board of trustees
- Codifying projects on FIN website/Faculty Center for Learning and Teaching (FCLT)
- Publications and presentations in disciplinary journals and at disciplinary conferences
- Development of GCC FCLT ☺

Keys To This Process

- Observation of the English 120 classes by faculty for 2-3 weeks, attending every class from beginning of the semester

- Adapting the techniques for each discipline- no one size fits all approach

Lessons learned by faculty:

- Value of interdisciplinary collaboration
- Value of listening to students
- Value of the incremental approach
- Insights about writing skills at the developmental level
- Value of studying a ‘slice’
- Going public isn’t easy

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