Scaffolding Inquiry Across the Curriculum at the University of Tampa: Progress and Lessons Learned

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A commitment to experiential education:
- The University is committed to the development of each student to become a productive and responsible citizen. To this end, the University ensures that students balance “learning by thinking” with “learning by doing.”

Inquiry: seeking for truth, information, or knowledge, or seeking information by questioning and experimenting.
A scaffolded approach to creating inquirers

- **Culminating Project**
  (junior/senior yr)

- **Discipline Skill Acquisition**
  (major courses; inquiry projects)

- **Introduction/Exposure to Modes of Inquiry**
  (FYE, FY classes)
Program Goals

Transform the institution through:

– Enhancing the awareness, importance, and visibility of scholarship and inquiry at UT by actively promoting and supporting both faculty mentoring and student engagement in these key learning processes.

– Increasing opportunities for student scholarship and creative works by developing more opportunities for faculty-student engagement for intensive mentoring and creative relationships.

– Engaging more students in quality internship experiences through changes in curricular requirements, strengthening of the rigor of internship outcomes, and improved relations with community partners.
Student learning objectives:

- Improving critical thinking skills as determined by changes in student approaches and problem solving as measured by external and internal assessment instruments;
- Improving communication abilities as determined by improvements in writing styles and abilities as measured by qualitative scoring rubrics and national normed tests;
- Improving communication abilities in public speaking/presentation skills as measured by qualitative scoring rubrics and national normed tests;
- Attaining practical skills related to the field of inquiry, including information/reference searching, quantitative literacy, creative thinking, and problem solving relative to projects and performance standards.
Inquiry in the First-Year Experience

**Logistics:**
- Faculty apply to teach sections of 20 students. 1 credit hour course with lots of college transition content.
- Faculty receive a stipend ($1000).
- Students stay with that instructor for two semesters.
- Students opt-in to Inquiry sections at registration.
- Inquiry sections introduce students to Faculty’s area of scholarship.
- Students are introduced to hypothesis generation and problem-framing in the field, as well as tools in that discipline.
- Students complete a group project.
Inquiry in the First-Year Experience

- 2016-17: 9 Sections (~180 students)
- 2017-18: 29 Sections (~580 students)
- 2018-19: 24 Sections (~480 students)

*Target was 20 courses/ year

Example titles:
- “Exploring Self-Expression via Freedom of Speech”
- “Conducting Business-Focused Empirical Research”
- “The Scientific Method Applied: What we learn from (Mis)translations in the Popular Press”
- “Scholarship of Game Playing”
- “Working with an Inter-Professional Team”
Logistics:

- Faculty apply to teach an Inquiry-based course.
  - Application is reviewed by the Undergraduate Research and Inquiry Faculty Committee.
  - Course Creation ($1000): Inquiry-based course.
  - Course Redesign ($1000): Inquiry-based assignments ≥ 75% of grade.
  - Significant Assignment ($600): Inquiry-based assignment ≥ 35% of grade.
  - Adding Assessments to Inquiry-Based course ($400).
Inquiry in the Upper Division: “In the Majors”

Students learn about:

• Their faculty member’s area of research and current topics of interest;
• Application of practices and methods (including tools and technology) within a discipline, done in a scaffolded approach, in a lab, studio, field or office setting;
• Intermediate level hypothesis and problem-framing processes related to higher level skills related to research and inquiry;
• Performance of an authentic inquiry-based project using acquired skills in response to a hypothesis or inquiry-based problem;
• Communication skills such as report writing; presenting data
Inquiry in the Upper Division: “In the Majors”

• 2016-17: 0 courses
• 2017-18: 37 courses across 14 majors
• 2018-19: 41 courses across 14 majors

Snapshot of 17-18 Courses:
• *Type of Course* - 52% adding assessment, 28% new or redesign whole course, 20% significantly changing one assignment
• *Course is part of sequence courses* - 45% yes
• *Pre-req to other courses in major* - 24% yes
• *Required for major* - 59% yes
Culminating Projects

Logistics:
• Traditional faculty-mentored research projects.
• Grants awarded for year-long or summer research.
• Year-long research projects:
  • $4000 – faculty stipend ($1000), student stipend ($1000), $2000 for supplies or travel to present research.
Culminating Projects

- 2016-17: 0 projects
- 2017-18: 9 projects (pilot year)
- 2018-19: 41 projects

- College of Arts and Letters: 22%
- College of Natural and Health Sciences: 46%
- College of Business: 12%
- College of Social Sciences, Mathematics and Education: 20%
Including Internships

Applied Learning Experience

- Multidisciplinary Team-based Internships.
- Focused on a questions or problem proposed by local organization.
- Teams of 3-4 students with faculty committee from each major represented.
- Pilot internships will be done this spring with four teams.
First-Year Assessment Tools

- Written Communication: Value Rubrics calibrated for our campus
- Oral Communication: Value Rubrics calibrated for our campus
- Critical Thinking: Scale of Intellectual Development based on Perry’s Model
Upper Level Assessment Tools

- Written Communication: Value Rubrics calibrated for our campus
- Oral Communication: Value Rubrics calibrated for our campus
- Critical Thinking: Scale of Intellectual Development based on Perry’s Model
- ETS Major Field Test: Impact of Number of Inquiry Courses
Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion.” - AAC&U Value Rubric

Scale of Intellectual Development measures cognitive growth and critical thinking in action.

- Developed by Dary Erwin at James Madison University
- 115 Likert scale items (20 min to take)
  - Dualism: Max score = 160
  - Relativism: Max score = 110
  - Commitment: Max score = 160
  - Empathy: Max score = 110

UT student data meet reliability and validity standards.
Scale of Intellectual Development: Perry’s Model

- William Perry: *Cognitive and ethical growth: the making of meaning*
- Based on the theory that cognitive growth is accompanied by the ability to decenter and view the world from other perspectives.
- Viewed as increasingly complex maturational milestones.
Scale of Intellectual Development: Perry’s Model

• **Dualism**: the world is black or white, right/wrong, good/bad dichotomies.
  – Early Dualism: The truth is out there, authorities know the truth. Just tell me the right answer, don’t give me theories.
  – Middle Dualism: Limited diversity – authorities give us problems to learn on our own, BUT we continue to rely heavily on authority for answers.
  – Late Dualism: Truths remain unknown even to authorities.
• **Multiplicity**: Diversity of opinion recognized as legitimate where right answers are not known
  
  – Early Multiplicity: Shift from certainty to uncertainty – when authorities fail, everyone has a right to an opinion.
  
  – Middle Multiplicity: In some courses authorities aren’t asking for right answers. They want us to think and support opinion with data.
  
  – Late Multiplicity: Knowledge is relative and contextual. Theories are not truths but metaphors to interpret data.
Scale of Intellectual Development: Perry’s Model

- **Relativism:** Diversity of opinion where values and judgment derive from coherent sources
  - Early Relativism: The world is infinite in context and choice. Personal decisions must be made and supported.

- **Commitment:** Affirmation, choice, or decision with agency residing within the individual
  - Early Commitment: Emergence of additional choice in the implementation of initial commitment. Things become contradictory and dilemmas may seem illogical.
  - Final Commitment: Integration of commitments. Must hold to values while respecting others.
Scale of Intellectual Development: Findings so far...

FYE Students in Inquiry Sections

<table>
<thead>
<tr>
<th>SID Subscale</th>
<th>Correlation with Grade in BACC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dualism I</td>
<td>.301**</td>
</tr>
<tr>
<td>Dualism II</td>
<td>.219*</td>
</tr>
<tr>
<td>Relativism I</td>
<td>.214*</td>
</tr>
<tr>
<td>Relativism II</td>
<td>.175</td>
</tr>
<tr>
<td>Commitment I</td>
<td>-.254**</td>
</tr>
<tr>
<td>Commitment II</td>
<td>-.272**</td>
</tr>
<tr>
<td>Empathy I</td>
<td>.201*</td>
</tr>
<tr>
<td>Empathy II</td>
<td>.109</td>
</tr>
</tbody>
</table>
## Scale of Intellectual Development: Findings so far...

Students in Major-level Inquiry Courses

<table>
<thead>
<tr>
<th>SID Subscale</th>
<th>Mean Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dualism Post: First-Year</td>
<td>86</td>
</tr>
<tr>
<td>Dualism Post: Major</td>
<td>83</td>
</tr>
<tr>
<td>Relativism Post: First-Year</td>
<td>55</td>
</tr>
<tr>
<td>Relativism Post: Major</td>
<td>57</td>
</tr>
<tr>
<td>Commitment Post: First-Year</td>
<td>72</td>
</tr>
<tr>
<td>Commitment Post: Major</td>
<td>98***</td>
</tr>
<tr>
<td>Empathy Post: First-Year</td>
<td>43</td>
</tr>
<tr>
<td>Empathy Post: Major</td>
<td>69***</td>
</tr>
</tbody>
</table>
Caveats to our current assessment data

- Students in non-inquiry FYE courses were not given survey
  - WHAT!? No control group!
  - Current year we are surveying all students in FYE with SID.

- Students have not shown significant changes in their SID scores through one class.
  - True for both FYE and Majors-level courses.
  - One semester too short to see a difference in critical thinking?
The Future of Inquiry at UT

• How to make these changes sustainable?
  – FYE is being revised
    • Exploring moving to a three credit hour course that will allow for inquiry-based components to be expanded.
    • Integration of community-based research and service learning is also being explored for these courses.

• Expand the number of Inquiry-based Majors-level courses
  – Creating Research Tracks or Concentrations in some Majors
    • Majors that impact the most students and have had the highest levels of faculty participation in the QEP thus far

• Potential creation of an Experiential Learning Requirement
  – Highly aligned with the mission of the university
  – Study-abroad, Leadership, Internships, Service Learning, Undergraduate Research
Thank you!

FAU OURI
Dr. Donna Chamely-Wilk

Organizers of the statewide Symposium
Dr. Kimberly Schneider

Samantha Sexton

The University of Tampa
Office of Undergraduate Research and Inquiry

UCF Undergraduate Research
Division of Teaching and Learning