Designing transdisciplinarity: logistics & strategies for co-teaching higher-order collaboration

CONFERENEC ON HIGHER EDUCATION PEDAGOGY

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Presentation overview

Defining transdisciplinarity
Why design transdisciplinary courses
Example course - VT SuperStudio
Data & methods
Logistics & strategies - institutional, course, & faculty
Activity
What is transdisciplinarity?

Transdisciplinarity aims to:

- “integrate the natural, social, and health sciences in a humanities context, and transcend their traditional boundaries” (Choi & Pak 2006)
- challenge traditional disciplinary boundaries & “seeks to assemble new approaches from scratch” (Bernstein, 2015)
What is transdisciplinarity?

transdisciplinary skills:
- teamwork, collaboration, communication, and conflict resolution;
- disciplinary and cultural standpoints;
- transdisciplinary analysis;
- and engagement across societal sectors (Barrett et al., 2019)

Why design transdisciplinarity?

Employers & hiring managers care
Students care
Alignment with institutional goals
Why design transdisciplinarity?

Employers & hiring managers care
  ◦ Ability to work in teams & across boundaries among most desirable traits in recent grads (Hart Research Associates, 2018; Selingo 2019; Kinsella & Waite, 2020)

Students care

Alignment with institutional goals
Why design transdisciplinarity?

Employers & hiring managers care

Students care
  ◦ Important experience & skill development (Barret et al. 2019)
    ◦ Discovery & definition of real-world problems (their interest, their choice)
    ◦ Iteration & comfort with uncertainty
    ◦ Reflection on problem solving
    ◦ Matching communication to intended audiences

Alignment with institutional goals
Why design transdisciplinarity?

Employers & hiring managers care

Students care

Alignment with institutional goals
  ◦ Curricular redesign toward inter & transdisciplinarity depends largely on institutional support (Risopoulos-Pichler et al. 2020)
What did we design?

VT Honors-Urban Affairs & Planning SuperStudio

Concurrent, collaborative, co-taught, co-requisite

5 transdisciplinary 3 credit topics courses
- (1) environmental policy and social change, (2) data analysis for health reform, (3) innovation for the public good, (4) the future of higher education, and (5) the future of employment

+ a co-requisite one-credit team-taught policy context lab
- focused on Green New Deal
- provides common context in which to interrogate overarching concepts like equity, representation, ethics, etc. (VT & outside guests as expert facilitators)
How does it work?

Meets 3x week, so 45 times over semester (75 mins T/Th; 50 mins W)
Considering logistics & strategies

Case study approach, using:

• Observations from our experience designing & delivering the course

• Content of discussions from summer WS with others working on transdisciplinary or team-taught courses

• Semi-structured key informant interviews to better understand administrator/institutional perspective
Logistics & strategies

• Institutional context
  • Whole institution
    • Alignment with goals
    • Funding models
  • Sub-unit (college, school, department)
    • Space collaboration

• Course context
  • Resources required

• Faculty context
Institutional considerations

Whole Institution:

Alignment with institutional goals

  ◦ Calls for capstones to include problem-based, interdisciplinary teamwork, and transdisciplinary solutions
  ◦ VT Destination Areas initiative: encourages research & teaching collaborations across disciplines “to address complex problems that impact the human condition”
  ◦ +Policy (secured funding & recognition through affiliation)

Institutional goals take time to reconcile with one another & to translate to sub-units
Institutional considerations

Whole Institution:

Budgeting model decisions/changes shape decisions across levels

- VT replaced incremental budgeting model w/ performance budgeting
  - Partnership for Incentive Based Budgeting (PIBB) aim: self-sufficient sub-units
  - Creates challenges for collaboration & co-teaching b/c of competition for revenue generation from enrollment
  - Confusion about allocation details, even among admins

Budgeting models may conflict with broader goals

Very likely need dedicated space; requires funding & support
Institutional considerations

Sub-Unit
- Opportunity to think differently about collaboration between units that do not grant degrees & degree-granting units
  - Non-degree: Typically not held to same budget models
  - Programming typically built on ideas not schedule logistics to fit degrees
  - Often have access to flexible spaces, maker spaces, laboratory space etc.
- Honors (diplomas based on flexible curricular choice); Institutes (experiential learning & collaborative research)
- Opportunity to collaborate based on goal/mission alignment, faculty relationships & interests
Course considerations

Time involved
- Planning must start months or weeks in advance
- Even when previously taught; requires good relationship among faculty
- Coordination: Weekly planning meetings during semester
  - Grading checks, feedback about students, adjusting lessons
- Course management system (we use Canvas)
  - Takes time to structure - different use assumptions than single course
  - Semester fully mapped; clear assignments & rubrics

Requires shared context co-requisite (policy; GND)
- Ties together faculty experience & interests
- Clear relationship between sections & co-requisites for students
- Creates shared foundation of knowledge from which to interrogate ideas & relationships
Faculty considerations

Shared context labs involve hidden labor

- One instructor of record but several participate – or – fractional credit each
  - Recognition/credit for effort varies widely by unit (know your unit)
  - Requires serendipitous mix of teaching experience, research background, teaching style, & collaboration style
  - Likely organic, not dictated or curated from above
- Requires excellent TA; great relationship with TA
**Actionable takeaways - considerations & lessons learned**

<table>
<thead>
<tr>
<th>Considerations &amp; Lessons Learned</th>
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<tbody>
<tr>
<td><strong>Institutional</strong></td>
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<tr>
<td>• Align with both higher-level institutional goals and initiatives</td>
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<td>• Consider budgeting models; seek exceptions when necessary</td>
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<td>• Provide internal support &amp; seek external funding to advance course design</td>
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<td>• Recognize the contribution of highly collaborative and transdisciplinary courses/studios (FAR, P&amp;T, etc.)</td>
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<td>• Ensure adequate and flexible space for course requirements</td>
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<td>• Be patient; it takes time to align higher goals with sub-units</td>
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### Considerations & Lessons Learned

<table>
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<tr>
<th>Course</th>
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<tr>
<td><strong>Ok to start small, iterate/grow integration &amp; collaboration over time</strong></td>
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<tr>
<td>Requires shared <strong>context lab</strong> in addition to <strong>complementary topics sections</strong>; find overarching policy context that interests all faculty</td>
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<td>Requires identification of overarching topics like ethics and equity &amp; explicit overlaps in topics</td>
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<td>Class management portals (Canvas, Blackboard, etc.) should be seamless; one portal for all student access &amp; interaction</td>
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<td>Communicate structure clearly: explain to students up front the differences in course structure &amp; aims; repeat during semester</td>
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## Actionable takeaways - considerations & lessons learned

<table>
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<tr>
<th>Faculty</th>
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<tr>
<td></td>
<td>• Find good team fit; support one another</td>
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<td>• Meet weekly; communicate often &amp; openly</td>
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<td>• Use mentored feedback sessions as basis for communicating with other faculty &amp; setting common expectations for students</td>
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<td>• Seek just compensation and recognition</td>
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Discussion groups

1. Introduce each other and your disciplines/interest areas

2. What are some common themes/concepts that fit across the group’s disciplines?

3. What topics connect with the GND?
   - Alternatively, is there another globally relevant theme that fits your disciplines and could be used as the shared focus?

4. Who might you invite to co-teach these topics?

Jamboard
## Details of how it works

Meets 3x week, so 45 times over semester (75 mins T/Th; 50 mins W)

<table>
<thead>
<tr>
<th>1,2- whole group</th>
<th>19- individual topics</th>
<th>32- group work, faculty advising</th>
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<tbody>
<tr>
<td>3,4- individual topics</td>
<td>20- whole group, policy change &amp; innovation</td>
<td>33- formal presentation</td>
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<tr>
<td>5- whole group, environmental justice</td>
<td>21, 22- topics paired</td>
<td>34-38- group work, faculty advising</td>
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<tr>
<td>6,7- individual topics</td>
<td>23- whole group, data visualization</td>
<td>39- formal presentation...</td>
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<td>8- whole group, problem framing</td>
<td>24,25- topics paired</td>
<td>...45- final group presentations</td>
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<td>9 – individual topics</td>
<td>26- whole group, visual thinking</td>
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<td>10, 11- whole group, final project intro &amp; decision-making processes...</td>
<td>27,28- topics paired...</td>
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