Welcome!

Using technology to enhance the integration of research, teaching and learning: A case study from Sociology

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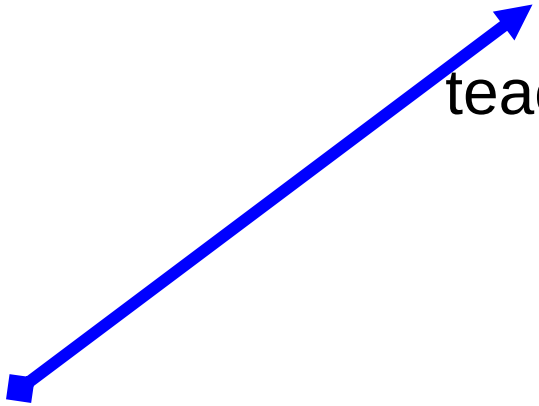
Outline

1. What does it mean to integrate research, teaching and learning, and why is it important?
2. Using technology to enable learning through inquiry
3. Case study: A technology-enhanced course on introductory sociology
    1. How it began
    2. What it's like - before and after integrating research into teaching and learning
    3. Has the integration made a difference?
4. How this will shape the next level of integration between research and teaching?

What does integrating research, teaching and learning mean - and why is it important?

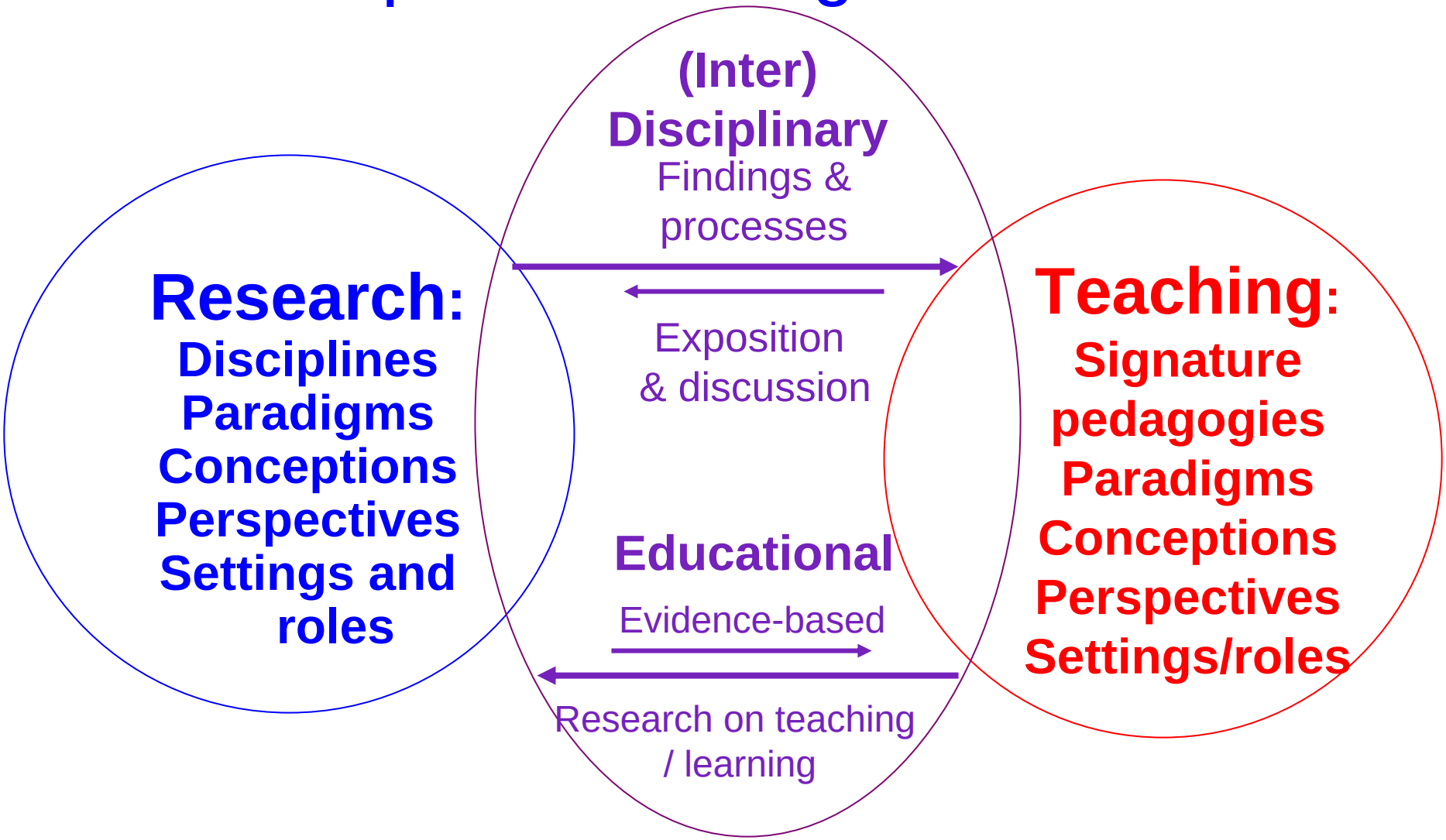
The integration of research and teaching as a ‘transformative’ concept

Explicit concept:
Conscious, transparent.
Deliberate innovation in
teaching and research practices

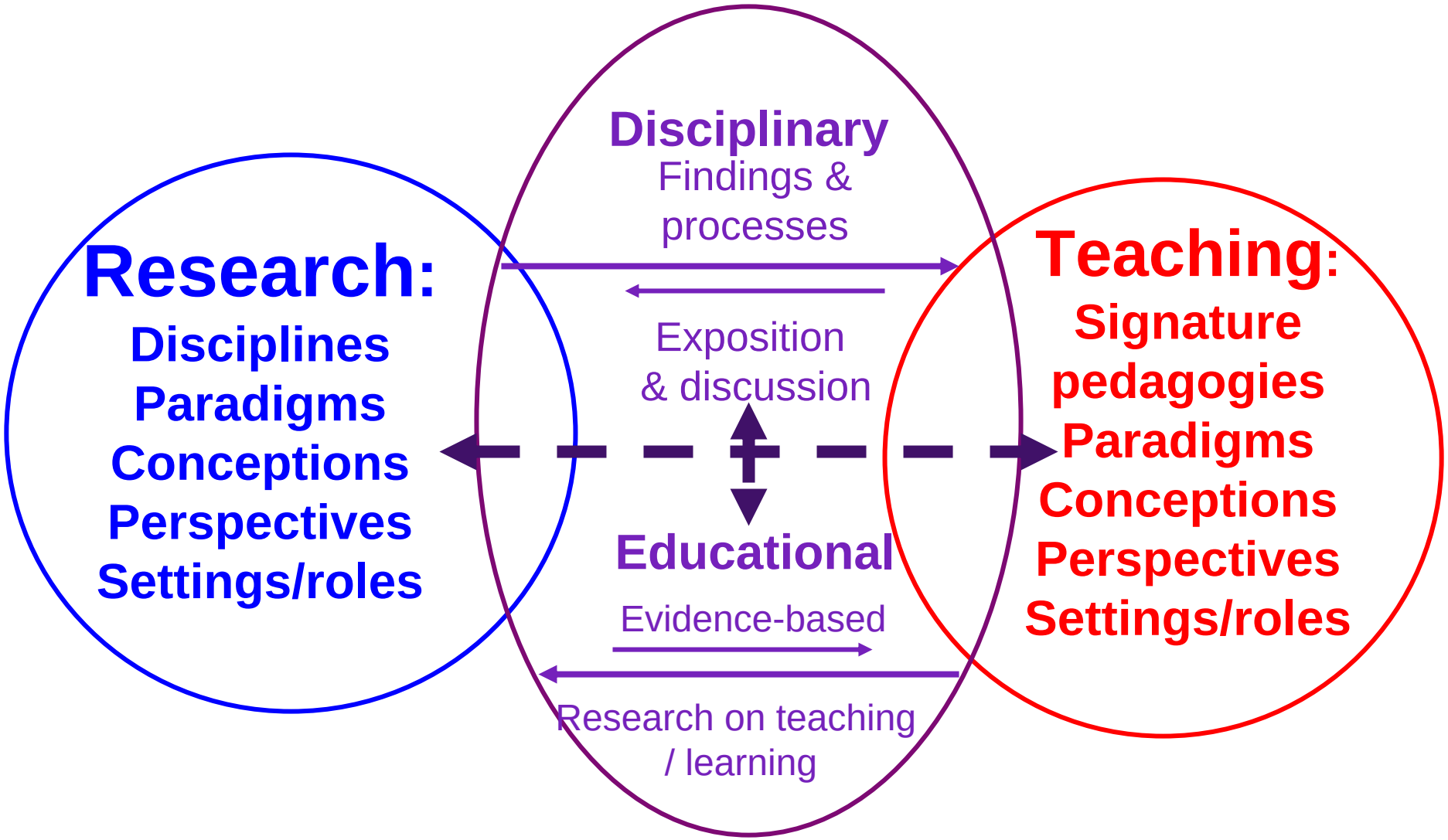


Implicit concept:
Tacit (naïve and intuitive) understandings,
Integration *taken for granted*
in conventional social practices
of teaching & research

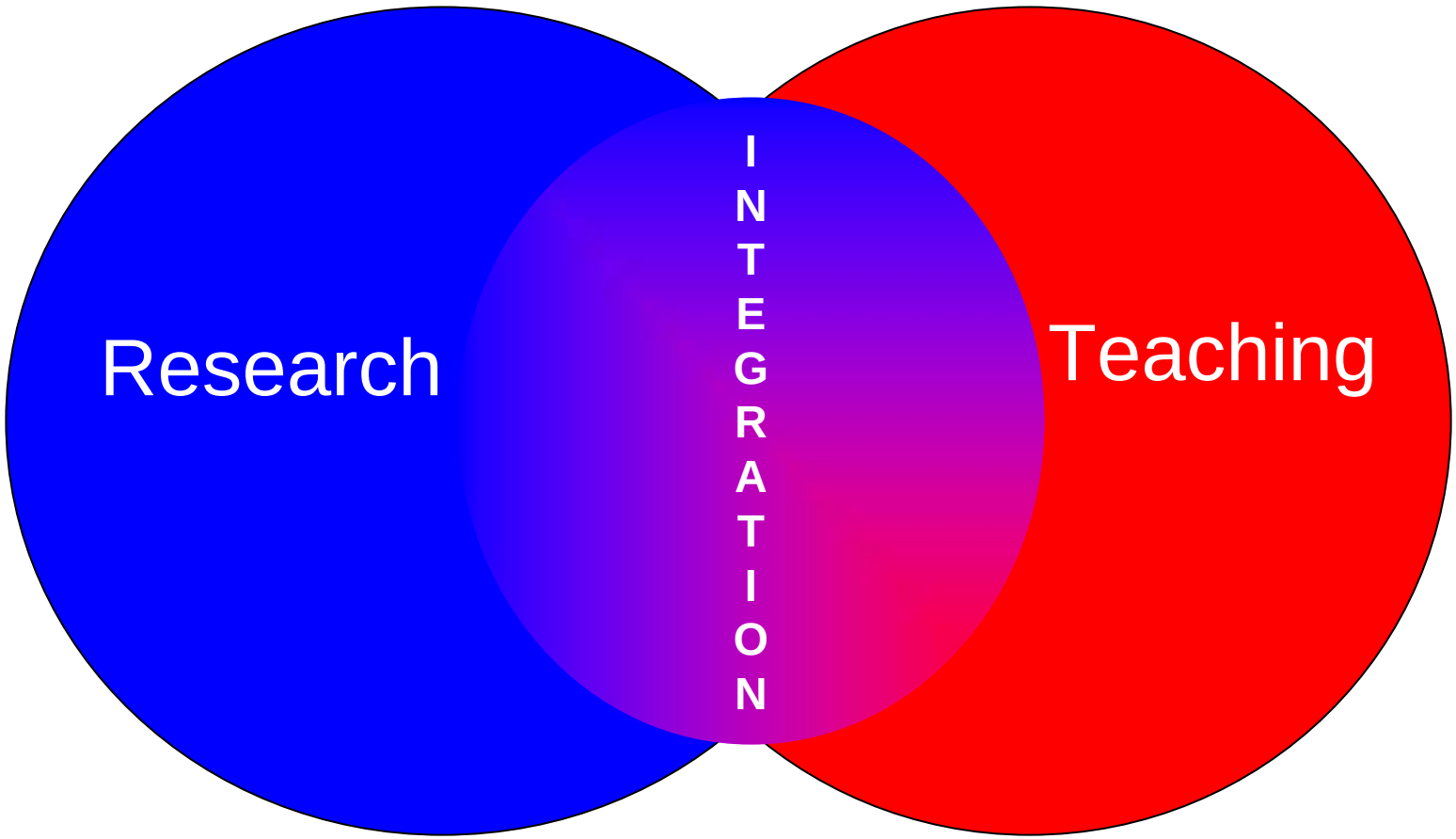
Explicit mapping shows multiple potential integrations



Deliberate and innovative mappings can be transformative



Explicit integration can allow us to look at research, teaching and learning in new ways!



Why is it important to integrate research into learning?

1. Pedagogical implications of OCAV Degree Level Expectations for disciplinary knowledge and skills, PLUS
   - Communication to a *range of audiences*
   - Limits of knowledge
   - Autonomy/professional capacity
2. Capacity for inquiry, research becoming recognized as an important outcome in a learning/knowledge-based society

3. Integrating research and learning can enhance the conditions known to promote high quality learning and student engagement:

- Align aims, methods and assessments
- Choice of methods and assessments
- Feedback and supportive climate
- Manageable workload
- Relevance- authentic tasks, realistic problems with meaning and future use
- Emphasize *ways of thinking, practicing* and learning as well as content
- Enhance metacognition and self-regulation
- Emphasize independent study

(eg Ramsden & Entwistle, 1981; ETL Project; De Corte *et al.* 2003)

Why is technology so important for this initiative?

Technology can enable learning through research in large classes and diverse contexts (vs. resource-intensive, elite groups of students):

- Access to data and data bases
- Tools for data collection and analysis
- Tools for communication and collaboration with peers
- Tools to communicate findings beyond the classroom
- Tools to trace learning processes and products for future research and learning

Case Study:

SOCI 1010 at York University
2004 - 2006

How it began: teaching experiences provoked questions and research

- Students ain't wot they used to be!
- Active investigation
- Research teaching alternatives....
- **T**echnology-**E**nabled **A**ctive **L**earning **(TEAL)** for 1st year physics at MIT (John Belcher)

  http://web.mit.edu/edtech/casestudies/teal.html

- TEAL outcome – improved conceptual understanding

What came next:

SOSI 1010 before and after research on (others') teaching led to integrating research into the process of teaching and learning

SOCI 1010 Before:

- ‘‘Conventional’ lectures in auditorium for 200 students
- http://www.pbase.com/listorama/image/62262513

- ‘Patchwork Text’ Assessments:
  - Weekly writing assignment
  - Reflective, integrative assignment at end of each term
- Students an ‘audience’ for research-based concepts and methods
- Concerns: attendance, attrition, student learning
- http://www.fotosearch.com/DGV616/740025

SOCI 1010 After

- Short lecturettes introduce concepts
- Concepts applied and elaborated using research problems and collaborative problem solving.
  - Students work on problems in groups of 3, sometimes as whole table (of 9), with frequent presentations to whole class
  - Laptops used to access research sites, video clips illustrating sociological phenomena and interactions, and for student-student communication (blogs, email, IM) during and after class
- Collaboration and community facilitated by classroom with round tables, rolling chairs & laptop for every 3 students
- Learning involves researching concepts and methods
- Patchwork Text assessment

SOCI 1010 After

- Example: Lecturette on the concept of “confirmation bias”
- Here are a few definitions of Confirmation Bias:
  • The tendency to seek evidence to support one’s hypothesis rather than to look for evidence that will undermine the hypothesis.
  www.wwnorton.com/college/psych/gman5/glossary/C.htm

  • A type of selective thinking whereby one tends to notice and to look for what confirms one's beliefs, and to ignore, not look for, or undervalue the relevance of what contradicts one's beliefs. For example, if one believes that during a full moon there is an increase in accidents, one will take notice when accidents occur during a full moon, but be inattentive to the moon when accidents occur during other times of the month. A tendency to do this over time unjustifiably strengthens one's belief in the relationship between the full moon and accidents.
  http://skepdic.com/confirmbias.html

  See the following article in Scientific American.
  Michael Shermer: Why Smart People Believe Weird Things. Scientific American. Sept. 2002.
  http://www.sciam.com/article.cfm?articleID=0002F4E6-8CF7-1D49-90FB809EC5880000

Has the integrative version of 1010 made a difference?

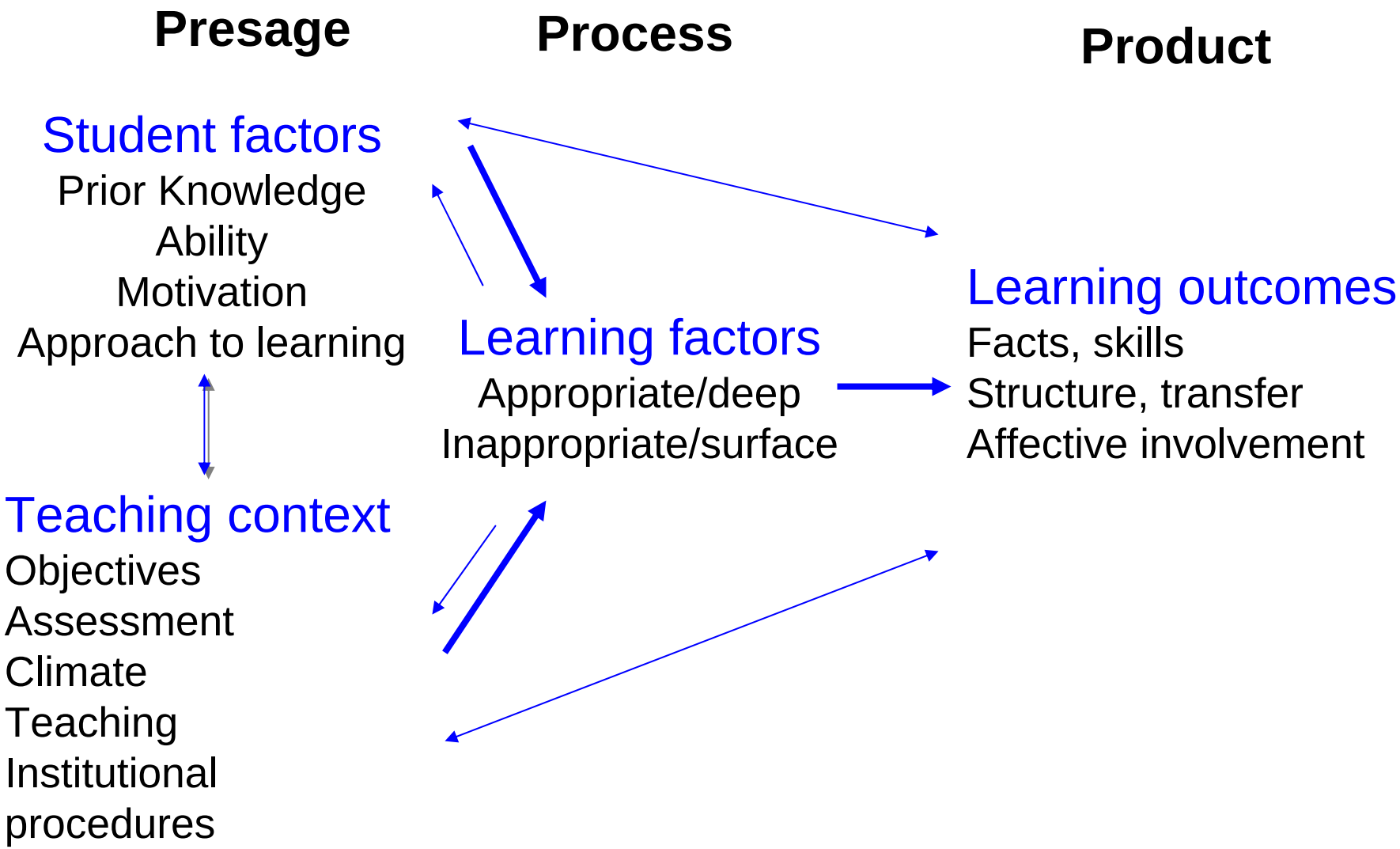
Interdisciplinary research on how integrating research into teaching and learning impacts on learning climate, processes and outcomes

Integrating disciplinary research perspectives

1. Educational Psychology

- Emphasis on learning and how it is influenced by (educational) factors

3 P model of teaching & learning
(Biggs, 2003)



Integrating disciplinary research perspectives

Ed. Psych.

- Empirical measures of: student approaches to learning, course experience questionnaire, perceptions of the learning environment questionnaire, subset of NSSE items, learning outcomes
- Assess change over time within and across course formats

2. Sociology

- Emphasis on social interaction, relationships and structures, community
- Ethnographic observation
- Demographic variables

Preliminary findings

Ed. psych. perspective

- Approaches to learning (Revised SPQ, Biggs *et al.* 2001)
  - surface approach in conventional course
  - increased deep over integrative course
- Value perspectives of others to reach understanding of concepts
- Increased student engagement (NSSE subset)
- Assessments
  - Increased clarity in understanding of sociological concepts (SOLO taxonomy)
  - Increased ability to apply concepts rigorously to questions
  - Increased clarity of writing
  - Higher final marks

Sociological perspective

- Attendance - 40% vs. 85% +
- Retention - 88% vs. 94%
- NSSE - increase subset on interactions (beyond national norm)
- Classroom Behaviour -
  - Large class: late, Individuals & dyads, social conversations during class, immediate change of focus at break and end of class
  - Integrative class: early; continued discussion during breaks & after, large groups sat and moved together, ‘I cant’ miss this class’
- Faculty experience - duty/ dread vs anticipation, ‘joy’
- Student perception/evaluation of teaching faculty – positive shift

Overall

Alientation in lecture-based class

vs.

Commitment - to learning, to peers

Social cohesion,

Changed understanding of ‘discussion’ and valuing of other perspectives for understanding

Better learning!

Future integration and transformation

- Apply research framework to:
  - other integrative teaching contexts (scalability of SOCI 1010 with online lecture component; clickers)
  - disciplines: biology (please join our collaboration!
- Draw concepts and perspectives from other disciplines to integrate into research framework (as above)
- Integrate disciplines in teaching/learning
- Integrate data (especially ethnographic records) into other integrative teaching contexts – research methods, faculty & TA development

Multiple integrations

Explicit analysis of case study helps us identify aspects of integration that are under-recognized and potentially transformative:

- Integrating research into teaching and learning shown to change process and benefit climate, outcomes
- Research into other ways of doing teaching improved teaching
- Integrating research perspectives and methods deepens our understanding of learning and teaching
- Teaching challenges motivate new research

Questions? Comments? Suggestions?

If you are interested in joining our collaboration, please contact us – after the session, at the CST (TEL 1050) or via rosw@yorku.ca

Thank you!