Teaching by Example
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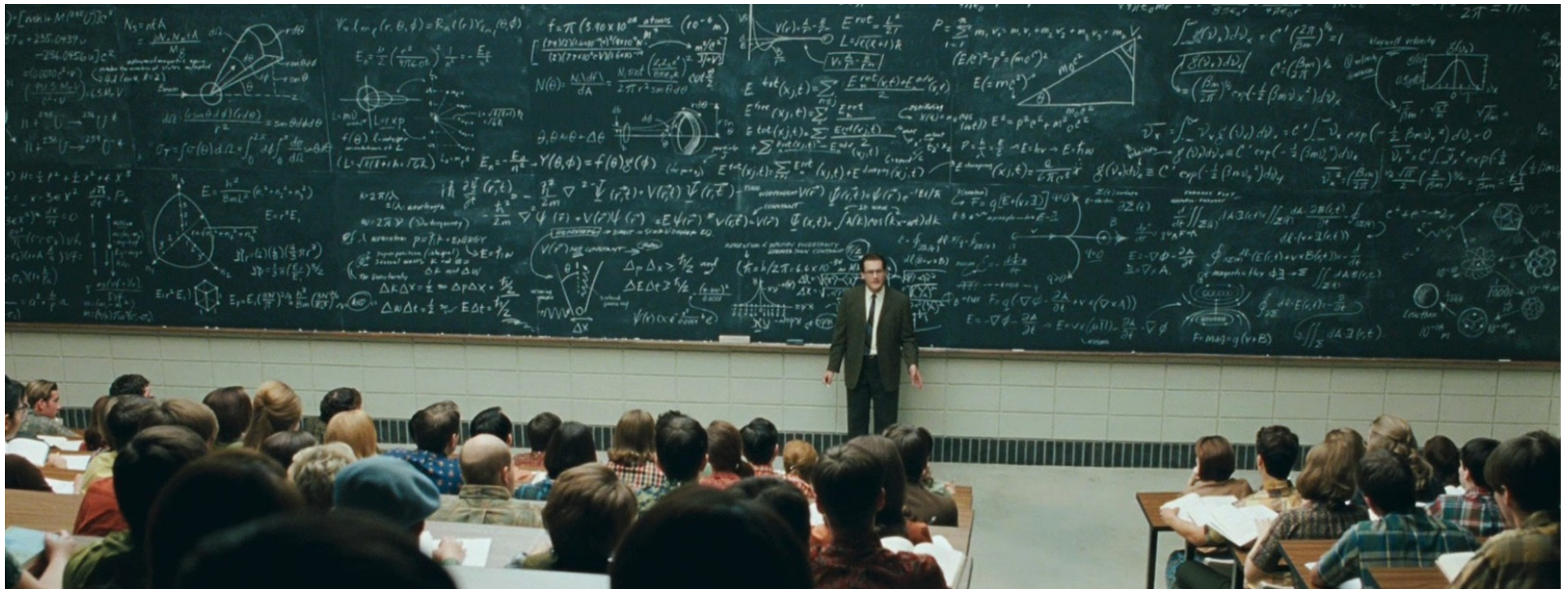**Department of Biology / University of Ottawa**
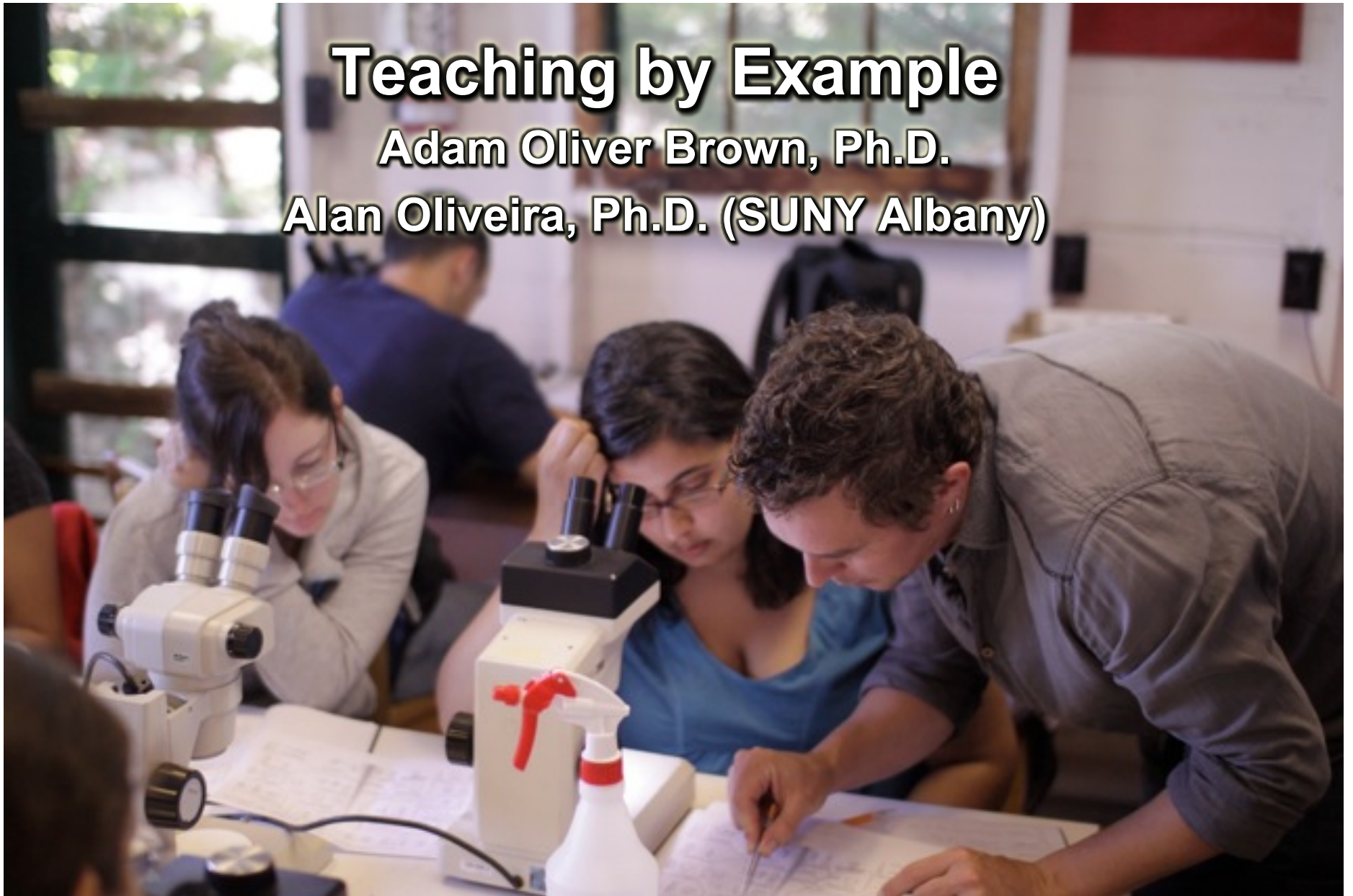
Teaching with Examples

- **Develop/clarify concepts**
- **Support abstract ideas**
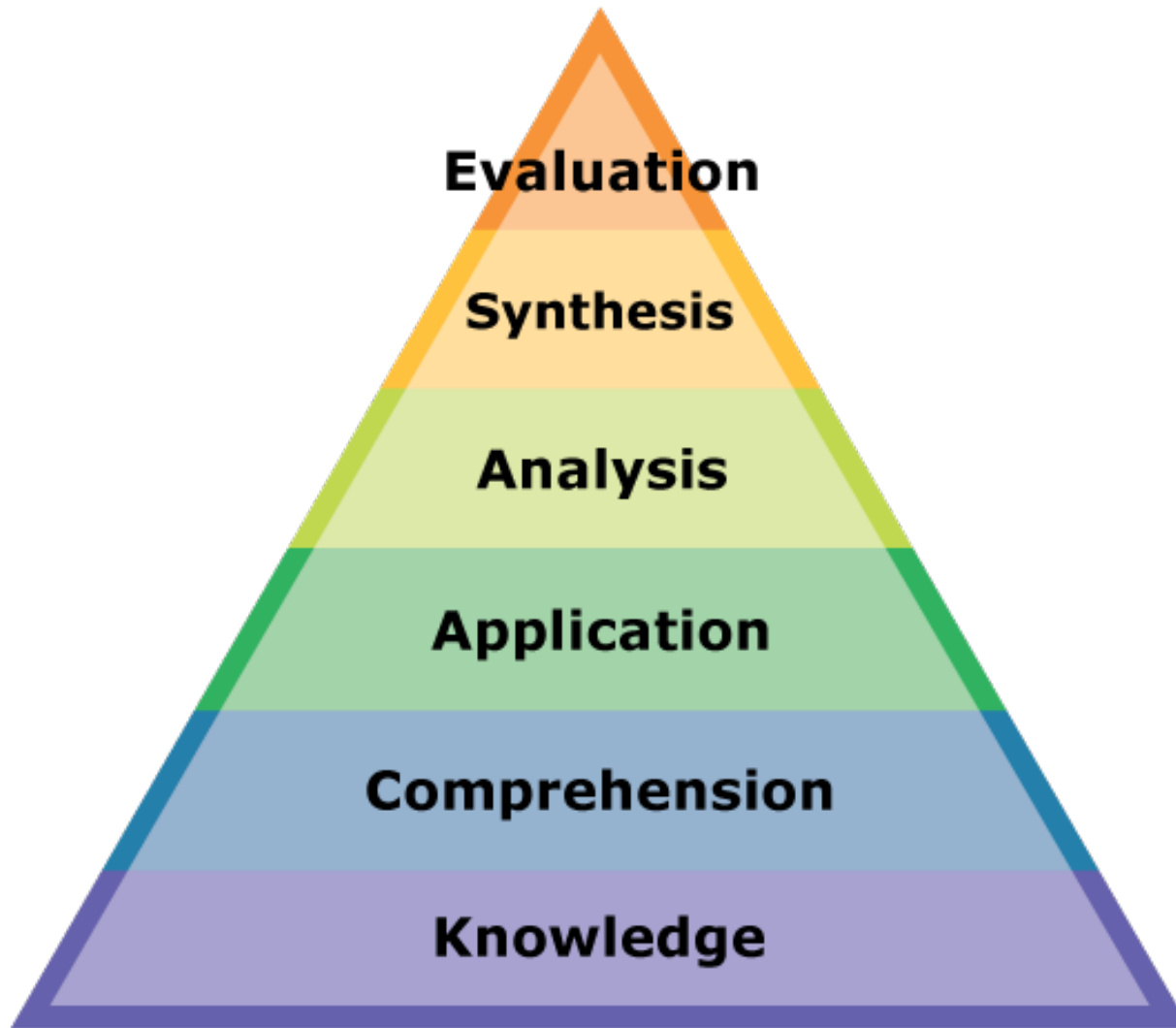- **Illustrate scenarios**
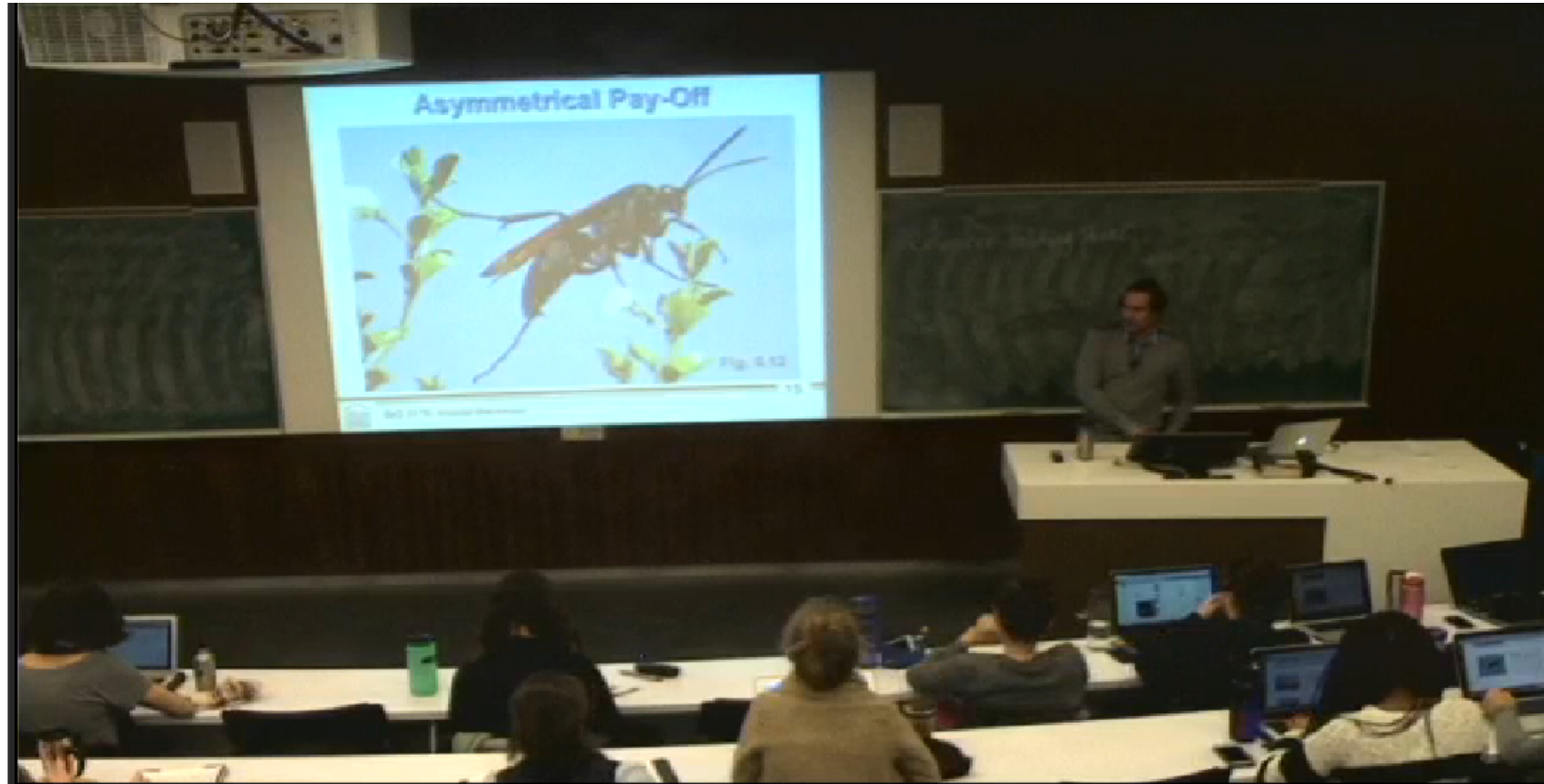- **Inform/persuade students**

Exemplary Pedagogy

Typically: General rule > then illustrate with example

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Bloom's Taxonomy

Teaching by Exemplification

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Teaching by Examples

- **More interesting to students**
- **Promotes active/ engaged learning (interruptions)**
- **Participatory**
- **Provides learning scaffold**

See the Forest for All the Trees

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Bluffing Threat Displays

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Honest Signaling

(A)

Fig. 6.28

(B)

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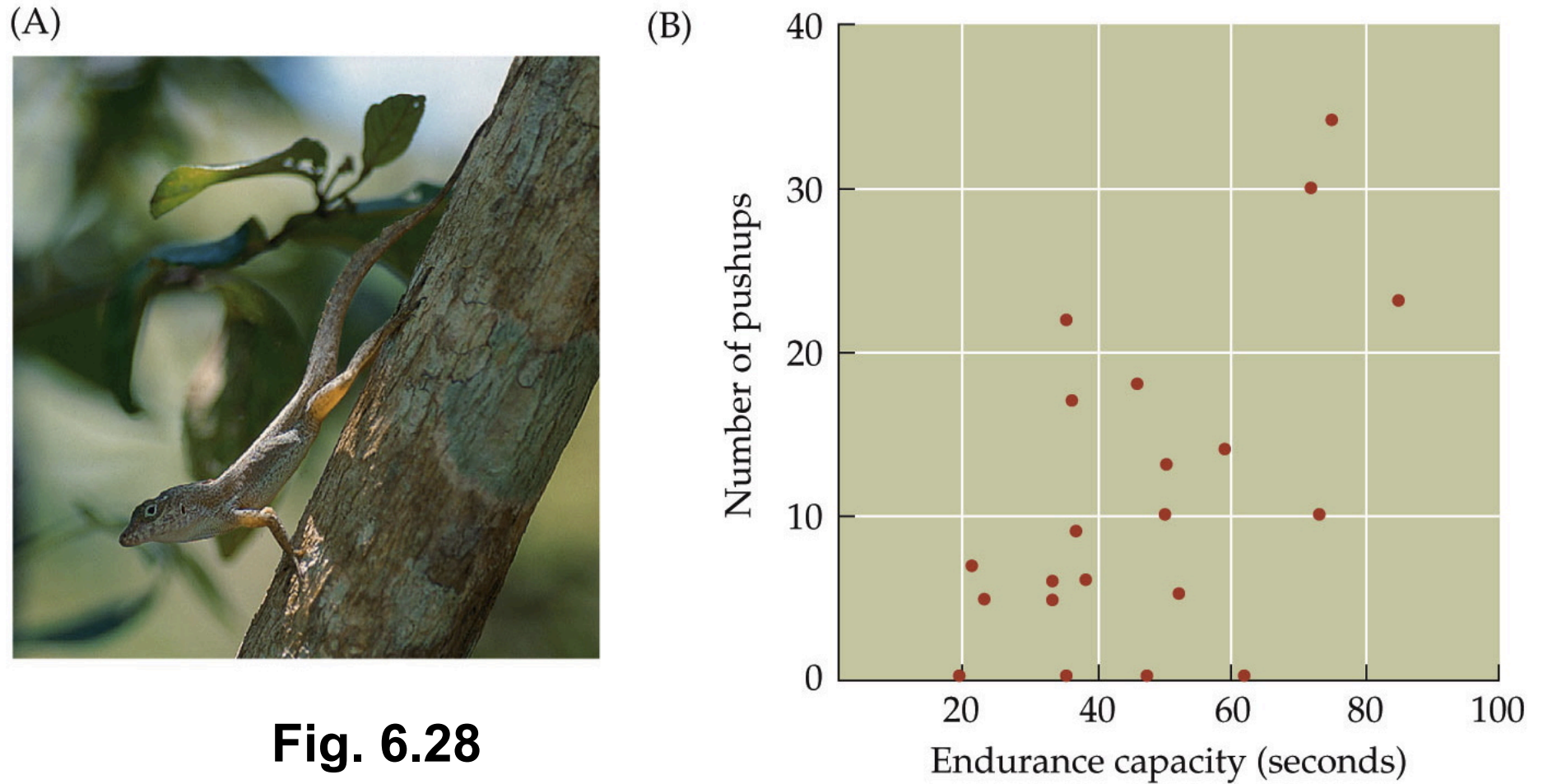
Come-and-Get-Me Behaviours

Mobbing Behaviour

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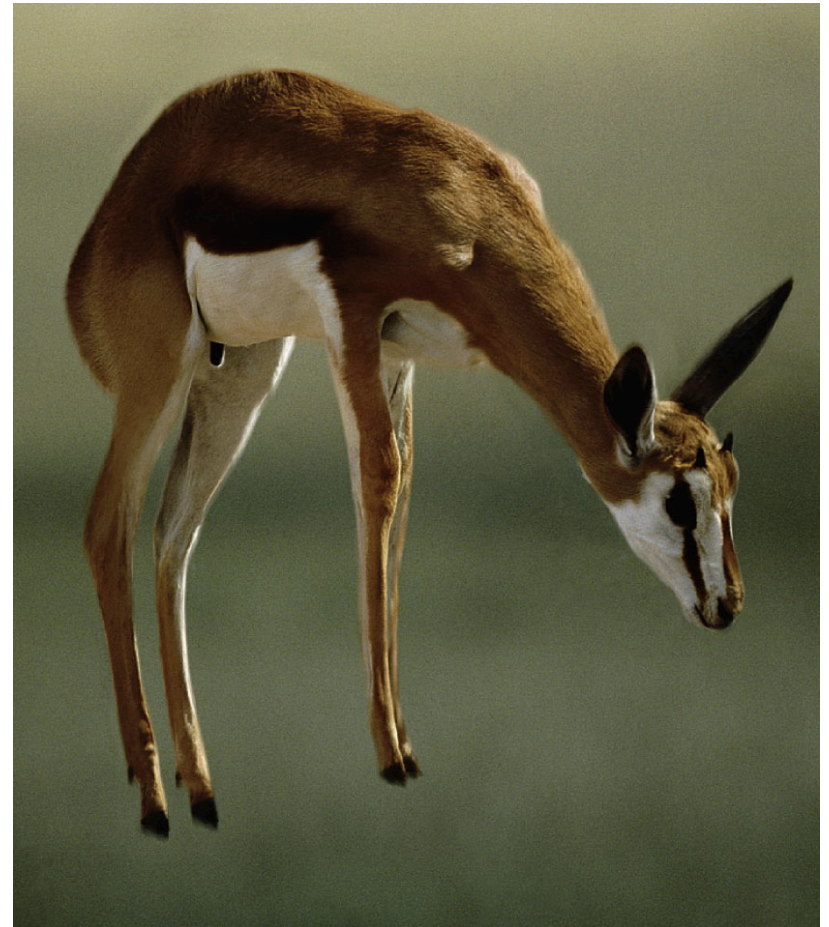
Testing the Prediction

Black-headed gull

Fig. 5.3

Chick Begging

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Cost of Begging

Fig. 4.32

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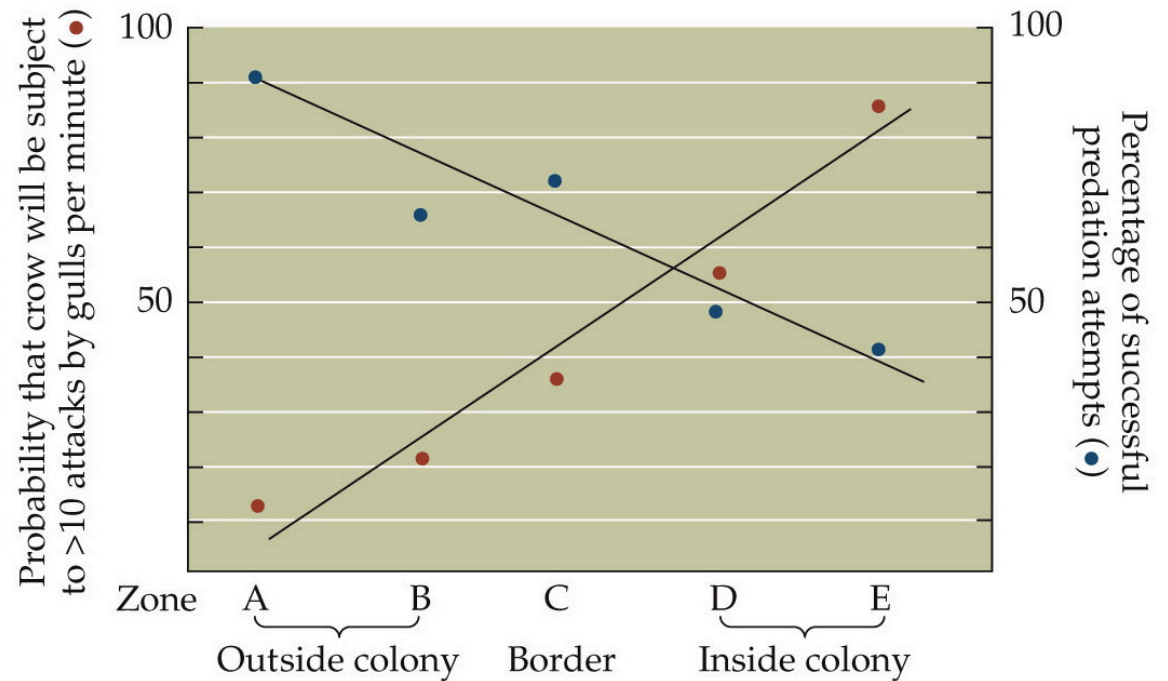
Studies of Exemplification

- **Michener (1978)**
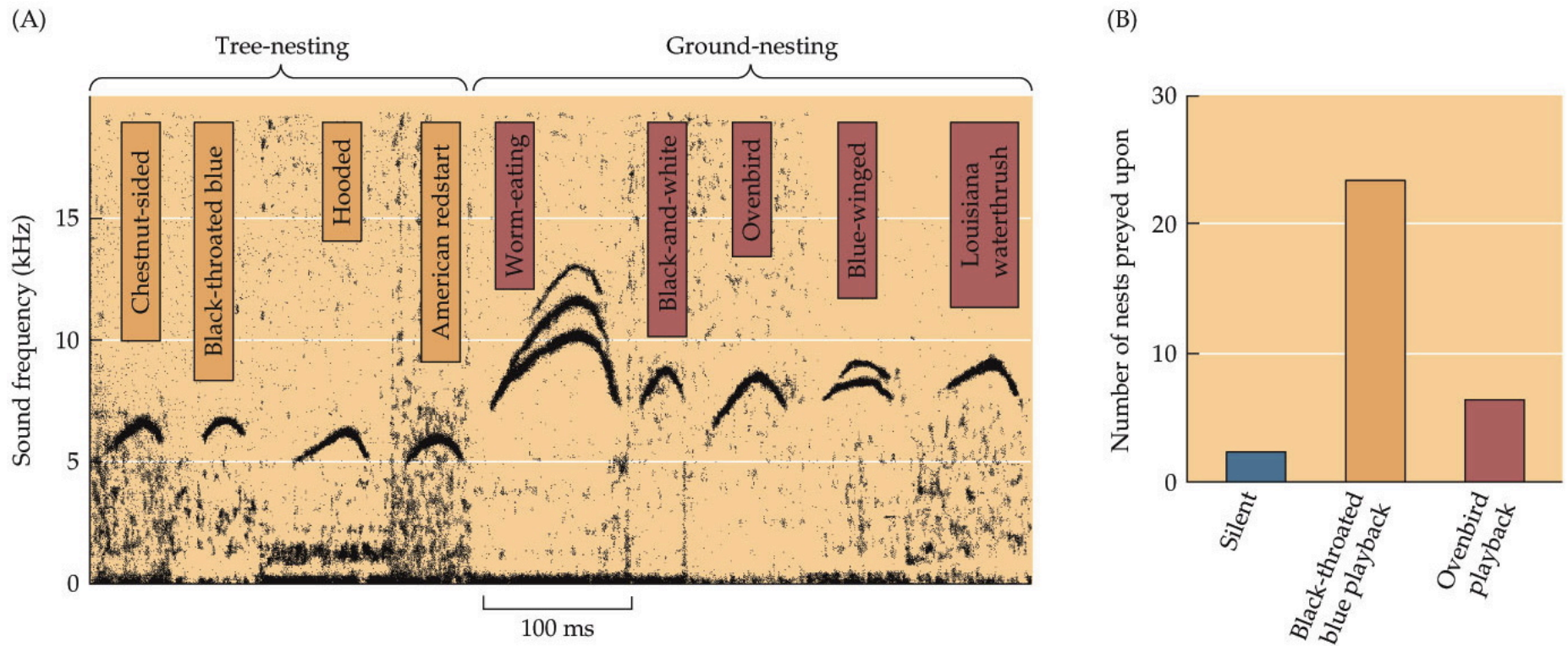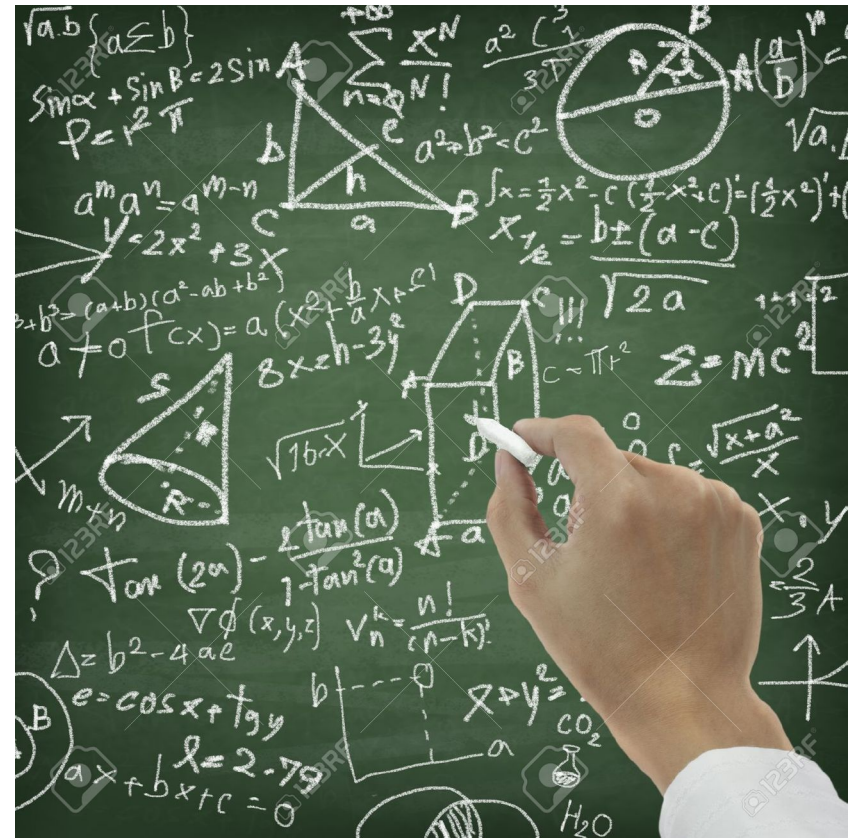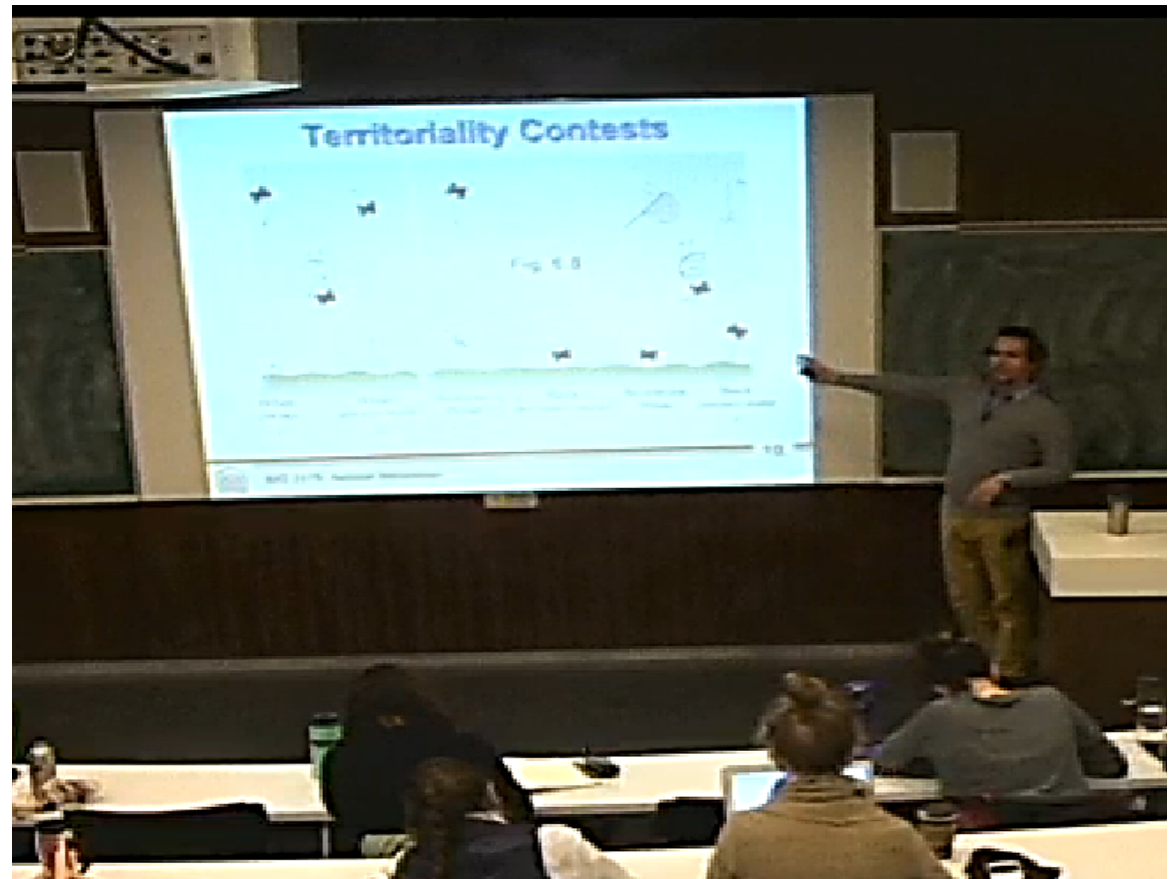 - Start-up examples: intro to new theory/concepts
  - Reference examples: widely applicable standard cases
  - Model examples: generic cases that summarize
  - Counter examples: show that conjecture is false

Teaching and Learning with Examples
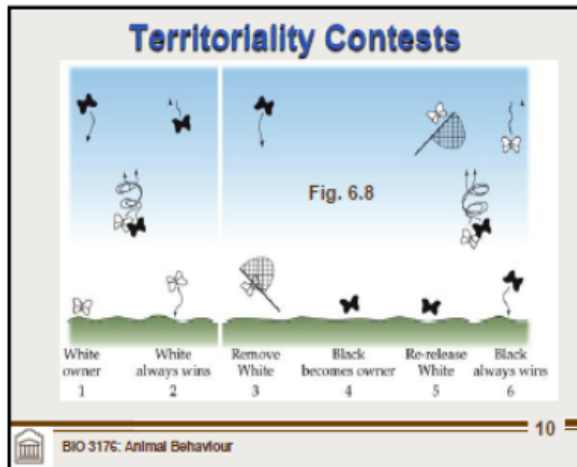
**Echo 360
Podcast Analysis**

Data Analysis

- **Intra-example features**
  - **Design and structure**

- **Inter-example features**
  - **Sequencing and arrangement**

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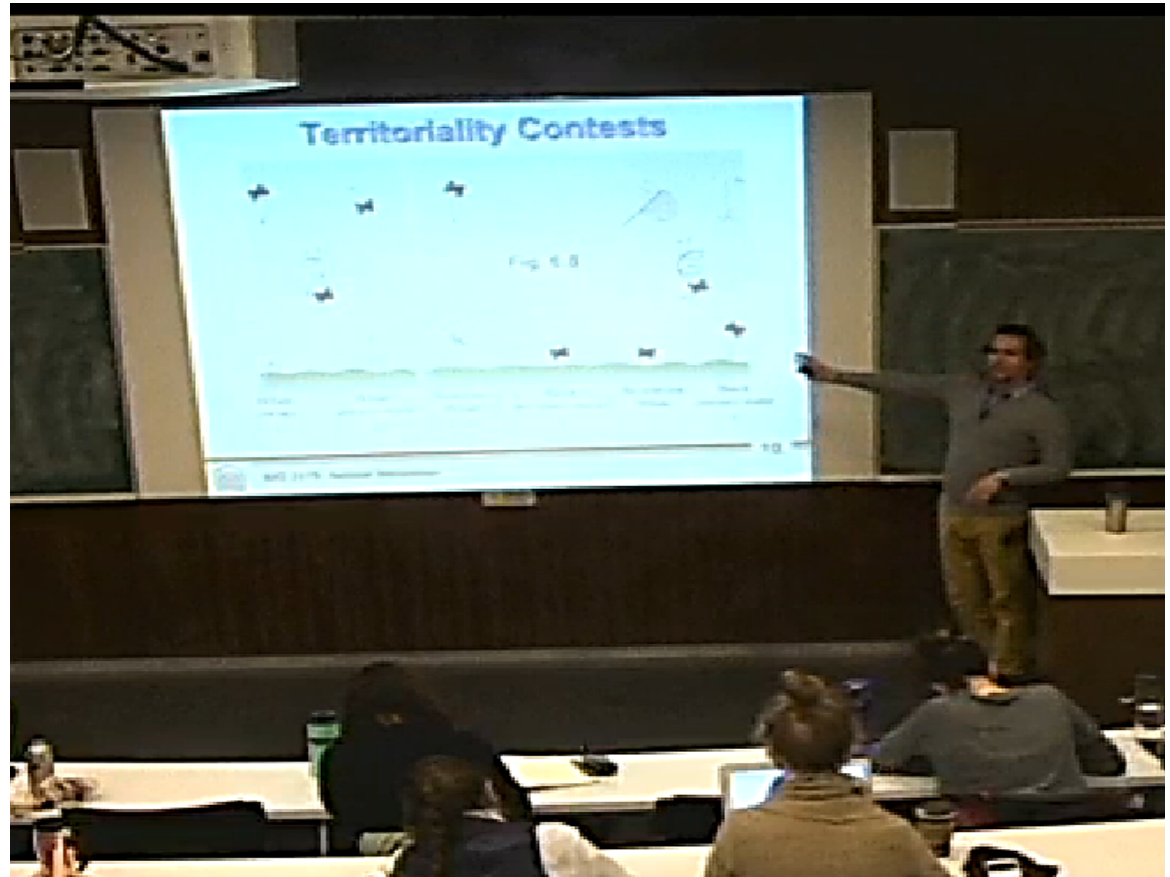
Data Analysis – Intra-example

- **Focus**
  - What example is about
- **Involvement**
  - Degree of personal involvement

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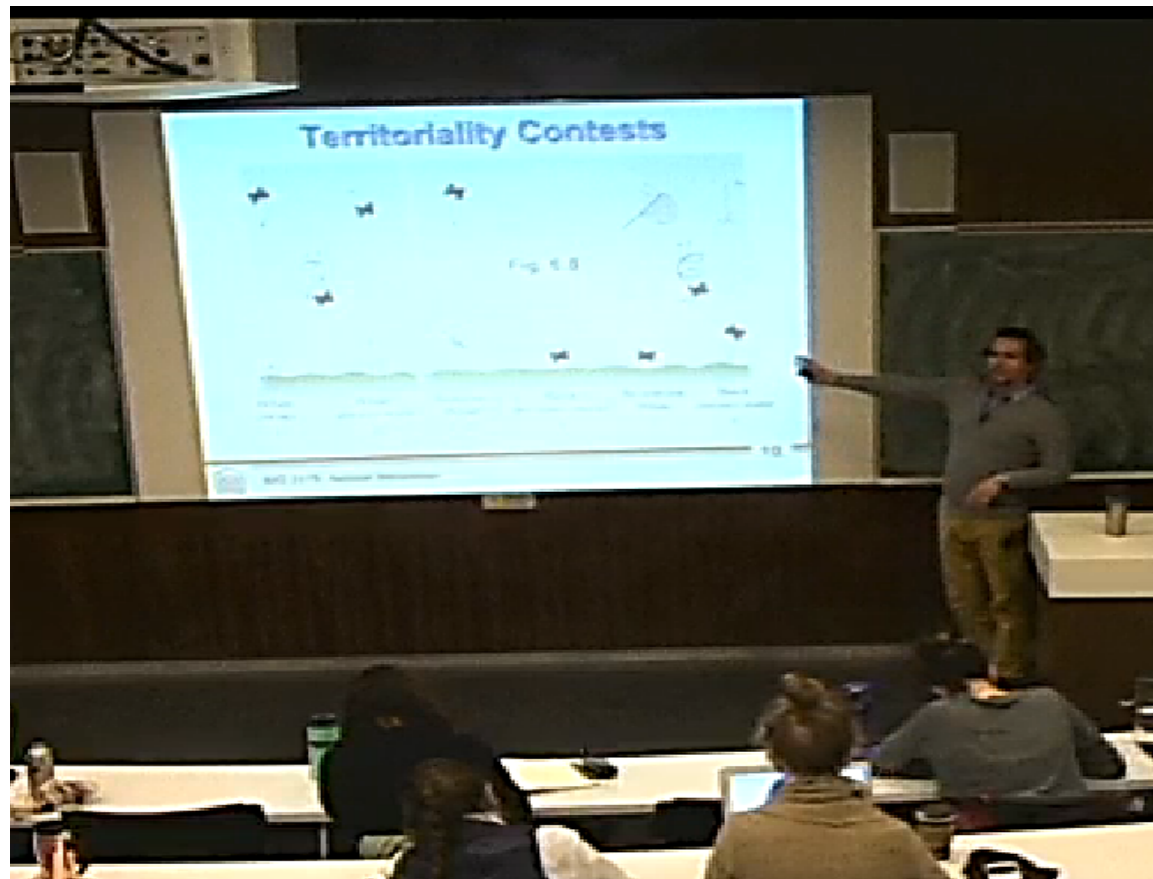
Data Analysis – Student Experience

- **Individual surveys**
- **Focus group interviews**
- **Written artifacts**

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Typology of Exemplification

Involvement
Participant
Examples

INVOLVEMENT

Detachment
Impersonal
Examples

Procedural Exemplification

Focus:
Research Design
Experimental approaches

Form:
Abstract representations
(schematics, drawings)

Function:
Introduction to methods
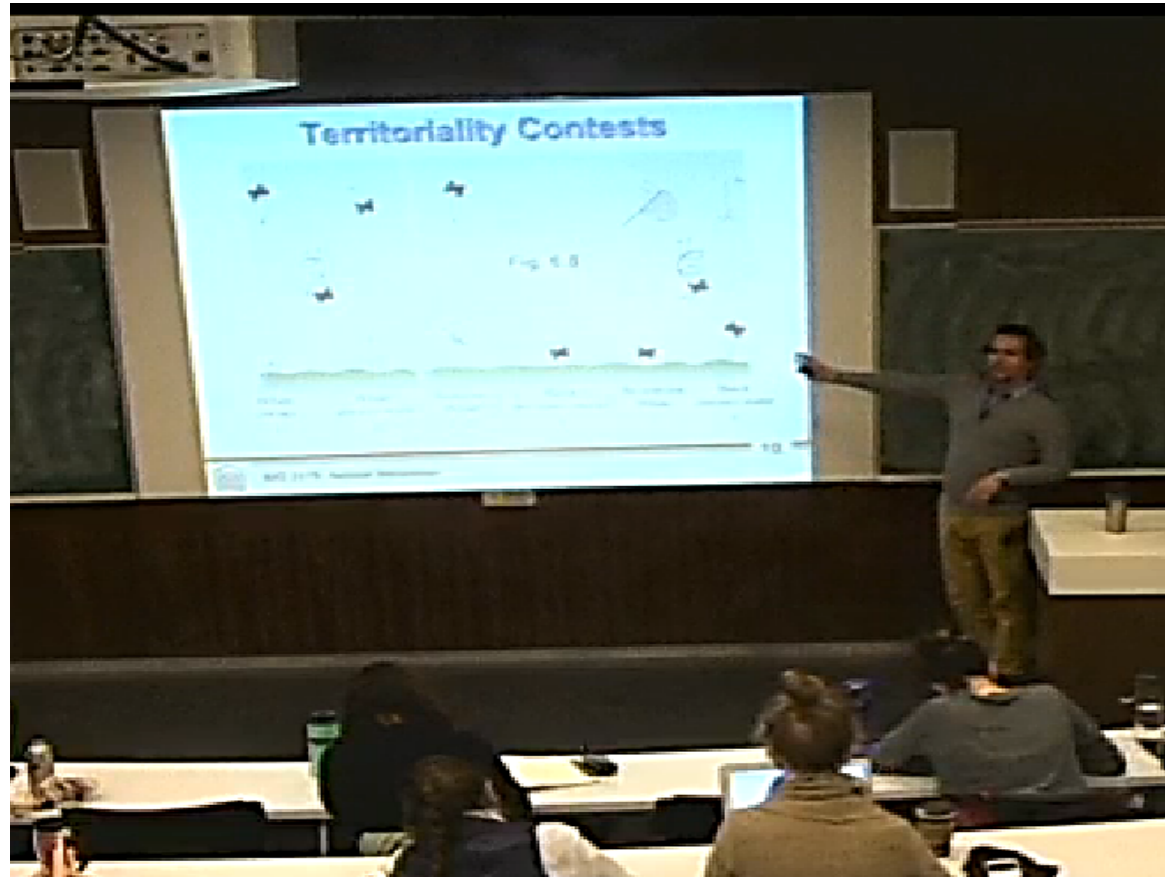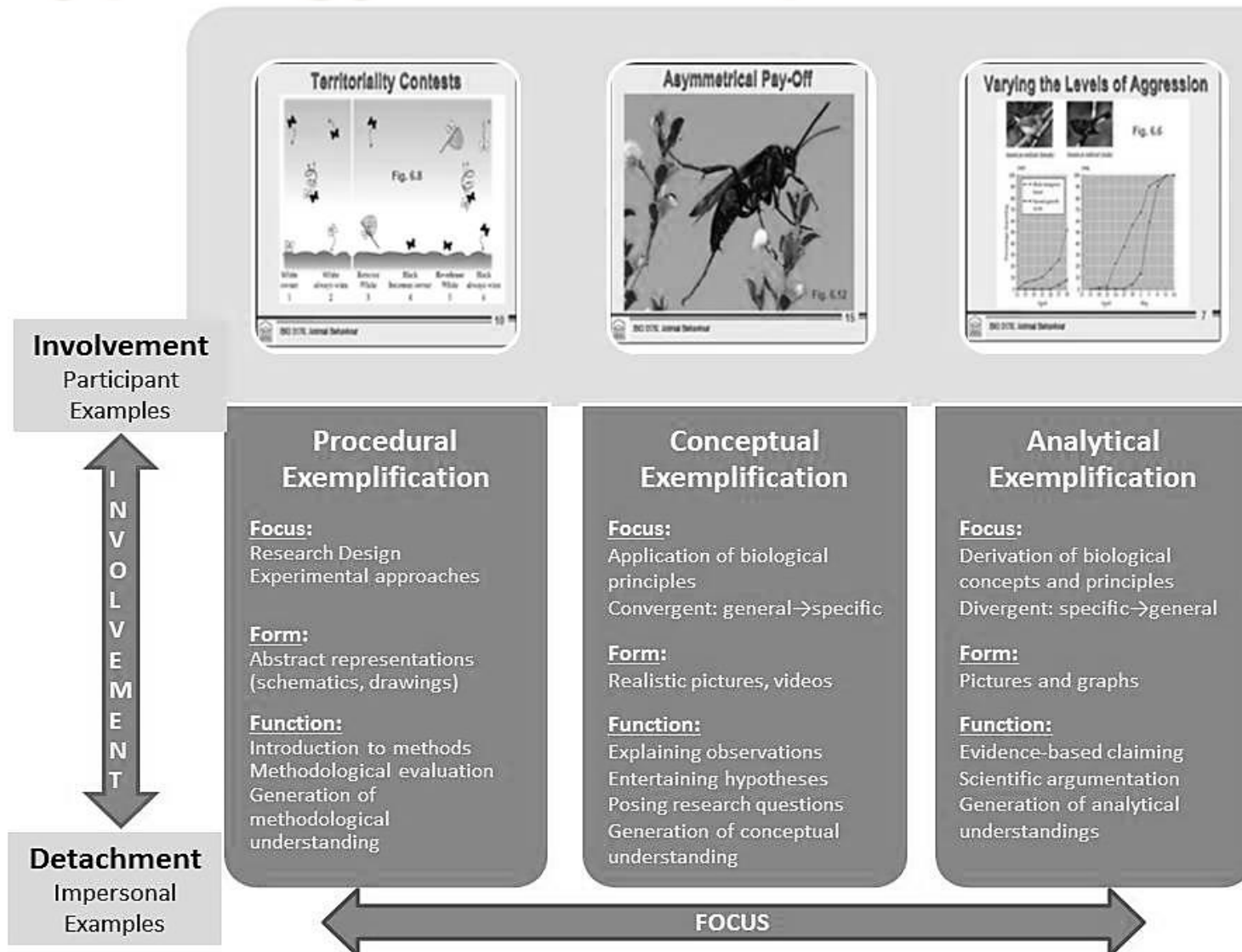Methodological evaluation
Generation of methodological understanding

Conceptual Exemplification

Focus:
Application of biological principles
Convergent: general→specific

Form:
Realistic pictures, videos

Function:
Explaining observations
Entertaining hypotheses
Posing research questions
Generation of conceptual understanding

Analytical Exemplification

Focus:
Derivation of biological concepts and principles
Divergent: specific→general

Form:
Pictures and graphs

Function:
Evidence-based claiming
Scientific argumentation
Generation of analytical understandings

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Questions?

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