Emotion as the hidden curriculum: The case of student anxiety

Elisabeth Schussler
Professor, Ecology and Evolutionary Biology
University of Tennessee, Knoxville
Acknowledgements

Benjamin England
Jennifer Brigati
Miranda Chen Musgrove
Maryrose Weatherton
Margaurete Romero
Caroline Wienhold
Hope Ferguson

Instructors and Students of BIOL 150 and 160
Think back to your first college science course...

What do you remember about it?
Affect

• Subjective feelings and experiences in response to a circumstance

• Cognition, physiology, and emotions all involved
Students react emotionally to the teaching and learning circumstances of our classes. Emotions impact student cognition, motivation, engagement.

Goldman and Goodboy, 2014; Mazer et al., 2014; Pekrun 1992; Titsworth et al., 2013
Assessment is the hidden curriculum (Gibbs and Simpson, 2005)

Emotion is hidden curriculum too

"affect is inextricably linked to both the process and products of learning"
Strain and D’mello, 2015
Today’s Take-Home Points

*Emotion is a “hidden curriculum”*

Student anxiety is shaped by the past and impacts the present and future in Intro Bio.

As instructors, we also shape the student anxiety experience.

Instructor support may moderate anxiety.

Attending to affect should be part of our curriculum planning.
Think back to your first college science course...

What were some of the reasons for your emotions?
ENVIRONMENT

Instructor Practices
Peers
Goals
Predispositions
Experiences

Control
Value

Emotions

Cognition
Motivation

Outcomes

Appraisal-based Emotion Theory
Control-Value Theory of Achievement Emotions
Adapted from Pekrun, 2006
Instructor Practices

Control Value

Anxiety

Cognition Motivation

Persistence in the Biology Major

Appraisal-based Emotion Theory
Control-Value Theory of Achievement Emotions
Adapted from Pekrun, 2006
Anxiety

• Worry about what could happen in future
• Negative, but activating
• Can have negative impacts on student course performance and persistence

England, Brigati, & Schussler, 2017; England et al., 2019; Akgun & Ciarrochi, 2010; Zusho, Pintrich, & Coppola, 2003; Witt et al., 2014; Respondek et al., 2017
Context: Intro Bio at UT

- BIOL 150: Organismal and Ecological Biology (OEB)
- BIOL 160: Cellular and Molecular Biology (CMB)

- Each course - one instructor, 220 students
- Instructors use active learning
- Active learning causes student anxiety
<table>
<thead>
<tr>
<th>Type of Anxiety</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Anxiety</td>
<td>Overall anxiety toward biology lecture</td>
</tr>
<tr>
<td></td>
<td>England et al., 2019</td>
</tr>
<tr>
<td></td>
<td>4 items</td>
</tr>
<tr>
<td></td>
<td>1-7 Likert</td>
</tr>
<tr>
<td>Perception of “Difficulty”</td>
<td>Overall perception of the difficulty of the class</td>
</tr>
<tr>
<td></td>
<td>England et al., 2019</td>
</tr>
<tr>
<td></td>
<td>3 items</td>
</tr>
<tr>
<td></td>
<td>1-7 Likert</td>
</tr>
<tr>
<td>Test Anxiety</td>
<td>Anxiety specifically about taking tests</td>
</tr>
<tr>
<td></td>
<td>MSLQ, Pintrich 1991</td>
</tr>
<tr>
<td></td>
<td>5 items</td>
</tr>
<tr>
<td></td>
<td>1-7 Likert</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>Anxiety specifically about working in groups</td>
</tr>
<tr>
<td></td>
<td>PRCA-24, McCroskey 1982</td>
</tr>
<tr>
<td></td>
<td>6 items</td>
</tr>
<tr>
<td></td>
<td>1-5 Likert</td>
</tr>
<tr>
<td>Communication Anxiety</td>
<td>Anxiety specifically about answering questions in front of the class</td>
</tr>
<tr>
<td></td>
<td>PRCA-24, McCroskey 1982</td>
</tr>
<tr>
<td></td>
<td>6 items</td>
</tr>
<tr>
<td></td>
<td>1-5 Likert</td>
</tr>
</tbody>
</table>

Assessed at weeks 4 and 14 of the semester

**Week 14** – will you stay in major?, **After semester** – final grade
<table>
<thead>
<tr>
<th>Type of Anxiety</th>
<th>Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Anxiety</strong></td>
<td><em>Overall anxiety toward biology lecture</em></td>
</tr>
<tr>
<td></td>
<td>4 items 1-7 Likert</td>
</tr>
<tr>
<td><strong>Perception of “Difficulty”</strong></td>
<td><em>Overall perception of the difficulty of the class</em></td>
</tr>
<tr>
<td></td>
<td>3 items 1-7 Likert</td>
</tr>
<tr>
<td><strong>Test Anxiety</strong></td>
<td><em>Anxiety specifically about taking tests</em></td>
</tr>
<tr>
<td></td>
<td>5 items 1-7 Likert</td>
</tr>
<tr>
<td><strong>Social Anxiety</strong></td>
<td><em>Anxiety specifically about working in groups</em></td>
</tr>
<tr>
<td></td>
<td>6 items 1-5 Likert</td>
</tr>
<tr>
<td><strong>Communication Anxiety</strong></td>
<td><em>Anxiety specifically about answering questions in front of the class</em></td>
</tr>
<tr>
<td></td>
<td>6 items 1-5 Likert</td>
</tr>
</tbody>
</table>

Perspective, Logistic regression, N =121
Performance, Ordinal regression N = 337

England et al., 2019
Before the semester

- Don’t know what to expect
- Length of time since last bio course

Week 4

- Material is hard / complex
- Poor instruction
- Being confused / struggling to understand

Week 14

- Expectations
- Prior Experiences
- Instructor Practices

Spring 2019, N = 195
Schussler, England, & Brigati, in prep
Instructor Practices

Expectations

Control

Value

Experiences

Anxiety

Anxiety

Anxiety

Anxiety

Anxiety
Student anxiety is not uniform in our classes

1 OEB, 2 CMB courses
N=319

England, Brigati, & Schussler, 2017
Persistence outcomes are not uniform

Instructor Practices

Expectations → Control Value

Experiences

Anxiety

Cognition

Motivation

Persisting in the Biology Major

Not persisting in the Biology Major
Today’s Take-Home Points

Emotion is a “hidden curriculum”

**Student anxiety is shaped by the past and impacts the present and future in Intro Bio**

**As instructors, we also shape the student anxiety experience**

Instructor support may moderate anxiety

Attending to affect should be part of our curriculum planning
Each class has its own emotional climate

Instructor Practices → Control Value → Anxiety → Cognition → Motivation → Persistence in the Biology Major

Instructor Practices → Control Value → Anxiety → Cognition → Motivation → Persistence in the Biology Major

Instructor Practices → Control Value → Anxiety → Cognition → Motivation → Persistence in the Biology Major
... and can vary over time for each class

Schussler, England, & Brigati, in prep
Instructors impact class emotion

Instructor Practices

Affect Regulation

Control Value

Anxiety

Cognition Motivation

Persistence in the Biology Major

Strain and D’mello, 2015; Gross and Thompson, 2007
“intentionally crafting the impression we make on students in order to maximize their motivation and learning” Cavanagh, 2016, p. 8
$r = -0.38^*, N = 458$

Pearson correlation coefficient; all $^* p< 0.05$

England, Brigati, & Schussler, in prep
Today’s Take-Home Points

- Emotion is a “hidden curriculum”

- Student anxiety is shaped by the past and impacts the present and future in Intro Bio

- As instructors, we also shape the student anxiety experience

- Instructor support may moderate anxiety

- Attending to affect should be part of our curriculum planning
1. What do students think makes an instructor “supportive”?
2. What distinguishes instructors rated as higher or lower in support?

Schussler, Weatherton, Musgrove, England, & Brigati, in revision
Lee
Man
Organism
<5 yrs
TT

Ken
Man
Organism
>15 yrs
NTT

Jan
Woman
Cell
5-10 yrs
NTT

Mia
Woman
Cell
>10 yrs
NTT
Online Survey – week 4

General anxiety
7 = high anxiety

Instructor support;
10 = high support

Please explain why you rated your instructor’s support the way you did.
N = 635 students
N = 137-184 per class

Number of Students at each Anxiety Range

Student Anxiety Level

Ken | Jan | Lee | Mia

N = 635 students
N = 137-184 per class
Average Class Anxiety Level

Perception of Support

Anxiety / support correlation
$r = -0.358, p < 0.01$
What do students say are characteristics related to instructor support?
<table>
<thead>
<tr>
<th>Theme</th>
<th>Student description</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational</td>
<td>Communication with instructor, feelings of instructor caring, helpfulness of instructor</td>
<td>She takes the time to listen to me</td>
</tr>
<tr>
<td></td>
<td></td>
<td>He does not act like he cares</td>
</tr>
<tr>
<td>Instrumental</td>
<td>Instructor helping outside of class time. Office hours, resources, extra meetings</td>
<td>She holds help sessions right after class</td>
</tr>
<tr>
<td>Pedagogical</td>
<td>In-class instructor behaviors indicating caring about student learning</td>
<td>She wants us to participate and do well in class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>He just does not teach in a style that works for me</td>
</tr>
<tr>
<td>Personality</td>
<td>How they felt about the instructor or the way they perceived them to be</td>
<td>She is not very personable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>He is super fun</td>
</tr>
<tr>
<td>Ambiguous</td>
<td>Not knowing how supportive they were because they never talked with them</td>
<td>I don't know, it's a large lecture class so it's not like he's going to get to know all 300 students...</td>
</tr>
</tbody>
</table>
Student support ratings of their instructors

- Relational+
- Instrumental
- Pedagogical+
- Personality+
- Relational-
- Pedagogical-
- Personality-
- Ambiguous

Percent of themes at each support rating

Student support ratings of their instructors

Relational+
Instrumental
Pedagogical+
Pedagogical-
Personality+
Personality-
Relational-
Ambiguous
Percent of themes by respondents for each instructor:

- **Relational+**
- **Relational-**
- **Instrumental**
- **Pedagogical+**
- **Pedagogical-**
- **Ambiguous**
- **Personality+**
- **Personality-**

**Ken**

**Jan**

**Lee**

**Mia**

Lower support:

Higher support:
Percent of themes by respondents for each instructor.

- **Ken**: Lower support in Relational+ and Pedagogical+.
- **Jan**: Lower support in Relational+.
- **Lee**: Lower support in Relational+ and Personality+.
- **Mia**: Lower support in Relational+.

Higher support includes:
- Relational+
- Instrumental
- Pedagogical+
- Personality+
- Pedagogical-
- Personality-
Today’s Take-Home Points

Emotion is a “hidden curriculum”

Student anxiety is shaped by the past and impacts the present and future in Intro Bio

As instructors, we also shape the student anxiety experience

Instructor support may moderate anxiety

Attending to affect should be part of our curriculum planning
How can we indicate support?

**WORDS**

**GESTURES**

**DEEDS**

**POLICIES**

Autonomy-supportive practices (Reeve, 2009); Noncontent instructor talk (Seidel et al. 2015; Harrison et al., 2019); Nonverbal Immediacy (Witt and Wheeless, 2001)
<table>
<thead>
<tr>
<th>Positive Relational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor wants them to <strong>succeed</strong></td>
</tr>
<tr>
<td>Instructor is <strong>helpful</strong></td>
</tr>
<tr>
<td>Instructor <strong>cares</strong> about them</td>
</tr>
<tr>
<td>Instructor: understanding, encouraging, there for us, has faith in the class to do well</td>
</tr>
</tbody>
</table>

<p>| SAY you want them to succeed; SAY you want to help them |
| USE nonverbal gestures to indicate approachability |
| DEMONSTRATE helpfulness by staying after class; having policies for extenuating circumstances |</p>
<table>
<thead>
<tr>
<th>Negative Pedagogical</th>
<th>Positive Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goes <strong>too fast</strong> through the information</td>
<td>ASK if they are confused; ACKNOWLEDGE that confusion is one stage of learning</td>
</tr>
<tr>
<td>Doesn’t listen to or understand <strong>student questions</strong></td>
<td>ATTEND to class body language; PAUSE for questions</td>
</tr>
<tr>
<td>Doesn’t <strong>explain things</strong> well</td>
<td>ALLOW for them to demonstrate learning in multiple ways; PROVIDE feedback</td>
</tr>
<tr>
<td>Doesn’t understand how <strong>challenging / difficult</strong> the class is</td>
<td></td>
</tr>
<tr>
<td>Just <strong>reads the slides</strong>; is boring</td>
<td></td>
</tr>
<tr>
<td>Expects students to learn it all <strong>on their own</strong>; doesn’t help you meet their expectations</td>
<td></td>
</tr>
</tbody>
</table>
Instructor Practices

Control Value

Anxiety

Cognition Motivation

Persistence in the Biology Major
Emotions can be moderated by our words, gestures, deeds, policies

Students are attending to these practices

We should too!
Today’s Take-Home Points

- Emotion is a “hidden curriculum”
- Student anxiety is shaped by the past and impacts the present and future in Intro Bio
- As instructors, we also shape the student anxiety experience
- Instructor support can moderate anxiety
- Attending to affect should be part of our curriculum planning