

Emotion as the hidden curriculum: The case of student anxiety



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KNOXVILLE

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BIOL 150 and 160



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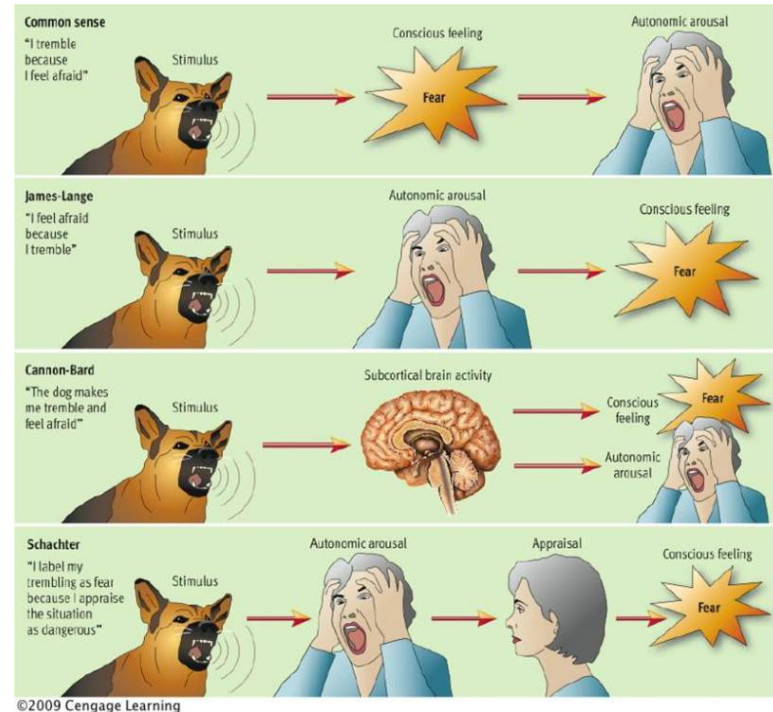
Think back to your first college science course...



What do you remember about it?

Affect

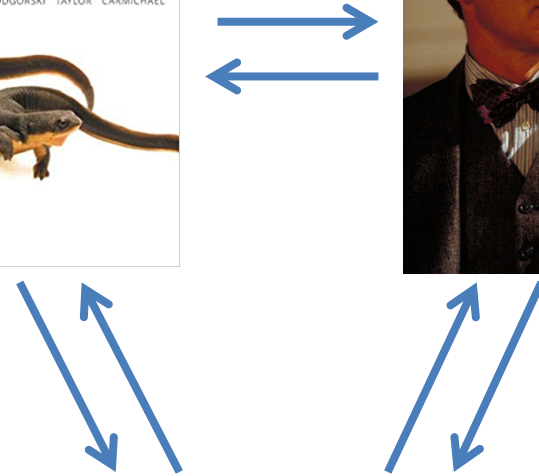
- Subjective feelings and experiences in response to a circumstance
- Cognition, physiology, and **emotions** all involved



Students react emotionally to the teaching and learning circumstances of our classes



Emotions
impact
student
cognition,
motivation,
engagement



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

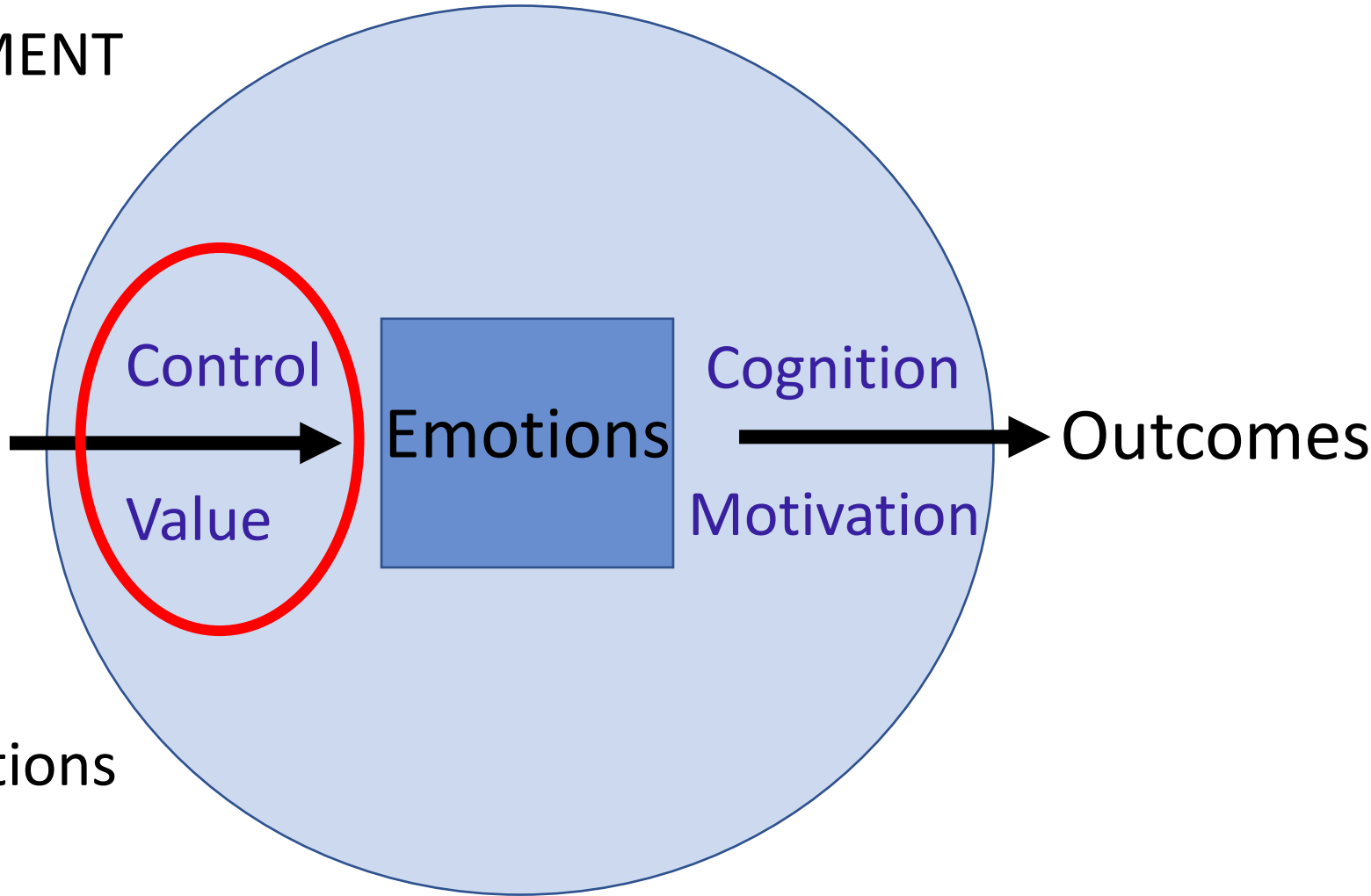
Instructor
Practices

Peers

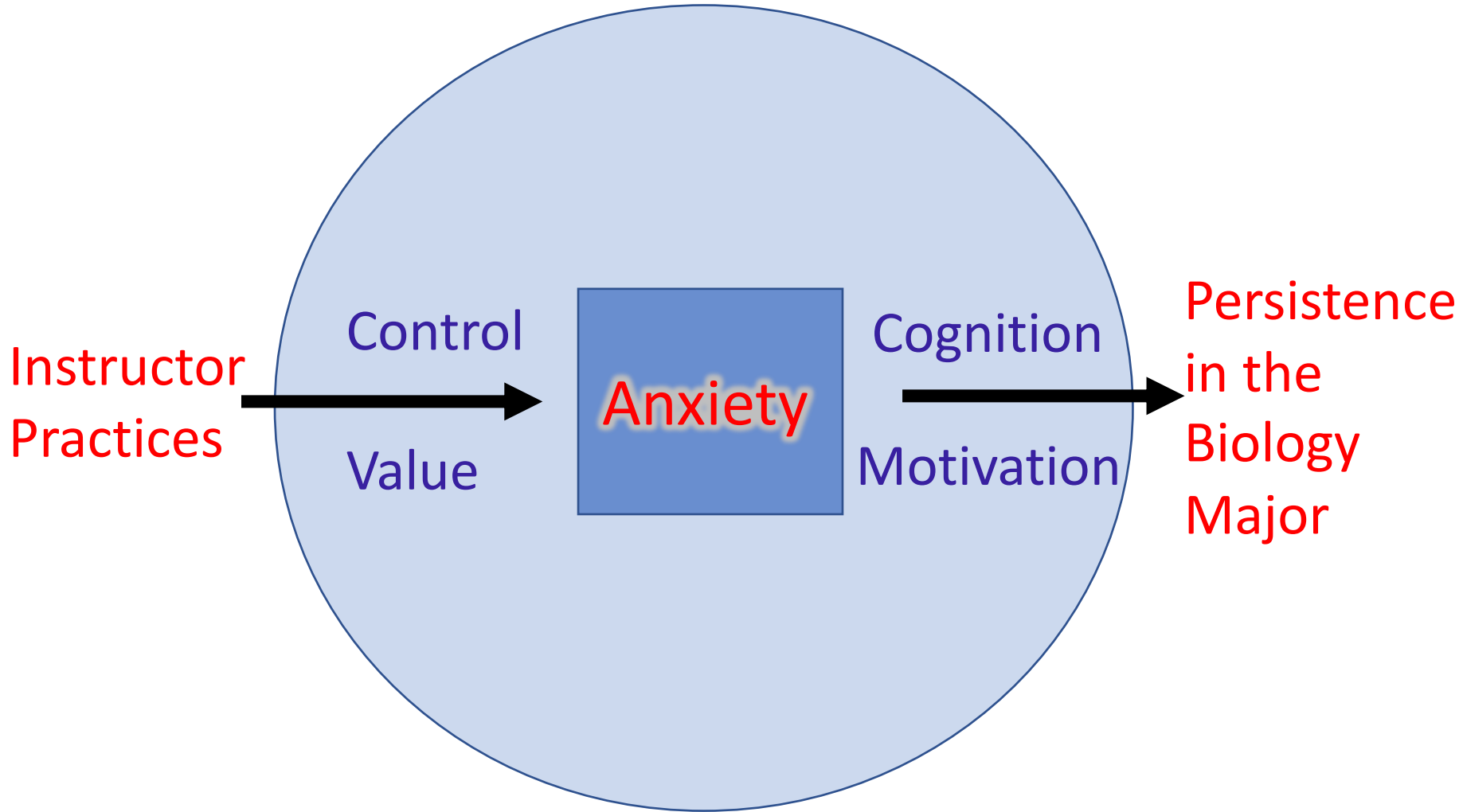
Goals

Predispositions

Experiences



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



Appraisal-based Emotion Theory
Control-Value Theory of Achievement Emotions
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Anxiety

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

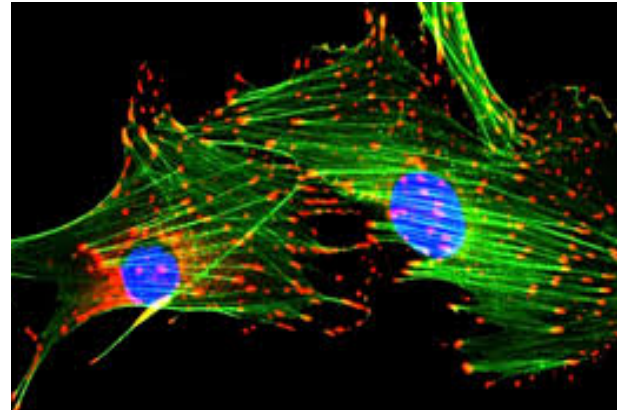


England, Brigati, & Schussler, 2017; England et al., 2019; Akgun & Ciarrochi, 2010; Zusho, Pintrich, & Coppola, 2003; Witt et al., 2014; Respondek et al., 2017

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

| Type of Anxiety | | Instrument |
|---|--|---|
|  <p>General Anxiety</p> | <p>Overall anxiety toward biology lecture</p> | <p>England et al., 2019 4 items 1-7 Likert</p> |
|  <p>Perception of “Difficulty”</p> | <p>Overall perception of the difficulty of the class</p> | <p>England et al., 2019 3 items 1-7 Likert</p> |
|  <p>Test Anxiety</p> | <p>Anxiety specifically about taking tests</p> | <p>MSLQ, Pintrich 1991 5 items 1-7 Likert</p> |
|  <p>Social Anxiety</p> | <p>Anxiety specifically about working in groups</p> | <p>PRCA-24, McCroskey 1982 6 items 1-5 Likert</p> |
|  <p>Communication Anxiety</p> | <p>Anxiety specifically about answering questions in front of the class</p> | <p>PRCA-24, McCroskey 1982 6 items 1-5 Likert</p> |

Assessed at weeks 4 and 14 of the semester

Week 14 – will you stay in major?, After semester – final grade

| Type of Anxiety | | Instrument |
|---|--|--|
|  <div style="border: 2px solid black; padding: 5px; display: inline-block;"> ▼ Persistence at Week 4 </div> <div style="font-size: 24px; font-weight: bold; margin-left: 10px;"> General Anxiety </div> | Overall anxiety toward biology lecture | England et al., 2019 4 items 1-7 Likert |
|  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ▼ Performance </div> <div style="font-size: 24px; font-weight: bold; margin-left: 10px;"> Perception of “Difficulty” </div> | Overall perception of the difficulty of the class | England et al., 2019 3 items 1-7 Likert |
|  <div style="border: 1px solid black; padding: 10px; display: inline-block; text-align: center;"> No relationship with performance or persistence </div> <div style="font-size: 24px; font-weight: bold; margin-left: 10px;"> Test Anxiety </div> | Anxiety specifically about taking tests | MSLQ, Pintrich 1991 5 items 1-7 Likert |
|  <div style="border: 1px solid black; padding: 10px; display: inline-block; text-align: center;"> No relationship with performance or persistence </div> <div style="font-size: 24px; font-weight: bold; margin-left: 10px;"> Social Anxiety </div> | Anxiety specifically about working in groups | PRCA-24, McCroskey 1982 6 items 1-5 Likert |
|  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> ▲ Performance </div> <div style="font-size: 24px; font-weight: bold; margin-left: 10px;"> Communication Anxiety </div> | Anxiety specifically about answering questions in front of the class | PRCA-24, McCroskey 1982 6 items 1-5 Likert |

Persistence, Logistic regression, N =121

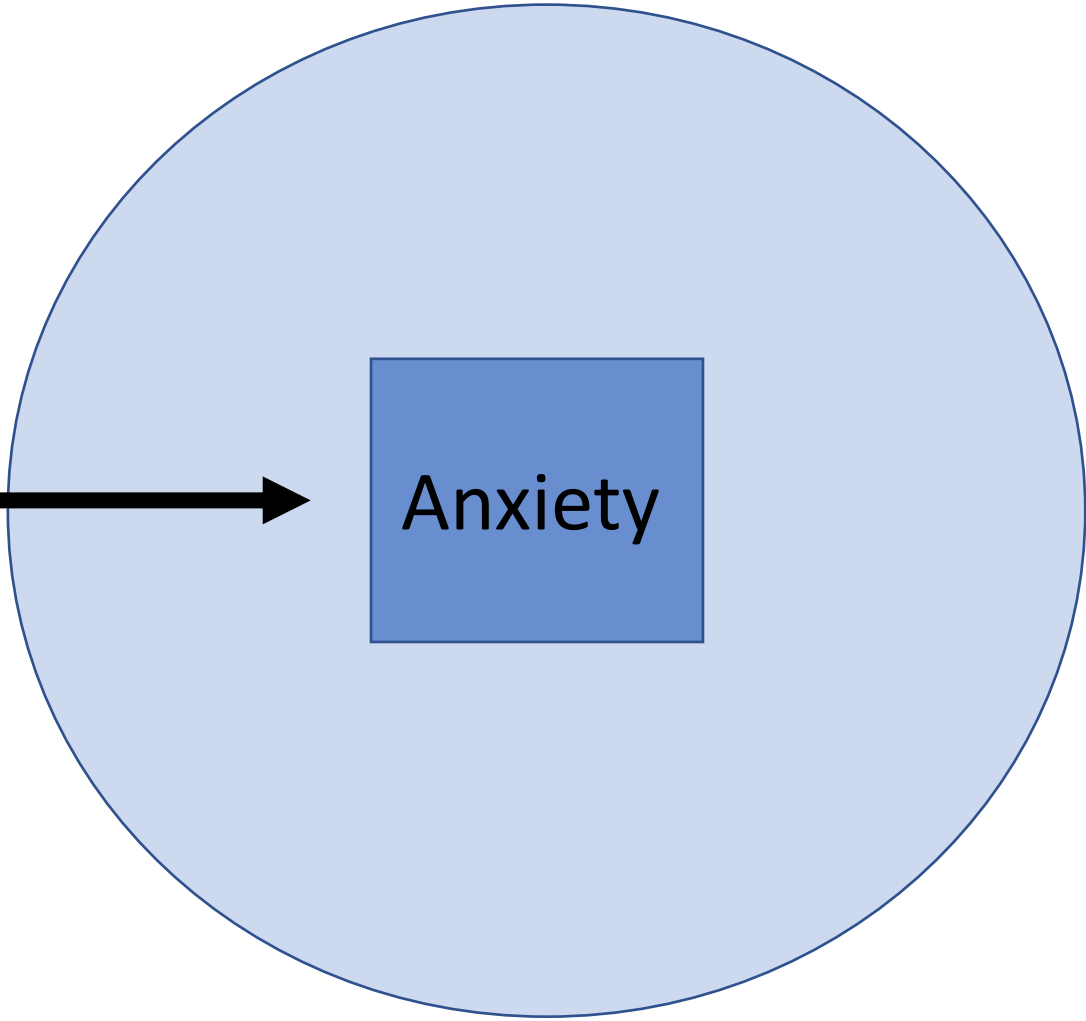
Performance, Ordinal regression N = 337

England et al., 2019

???



Anxiety



Before the semester



Week 4



Week 14

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

Expectations

Prior Experiences

Instructor Practices

- Size of class
- Bad previous bio experience

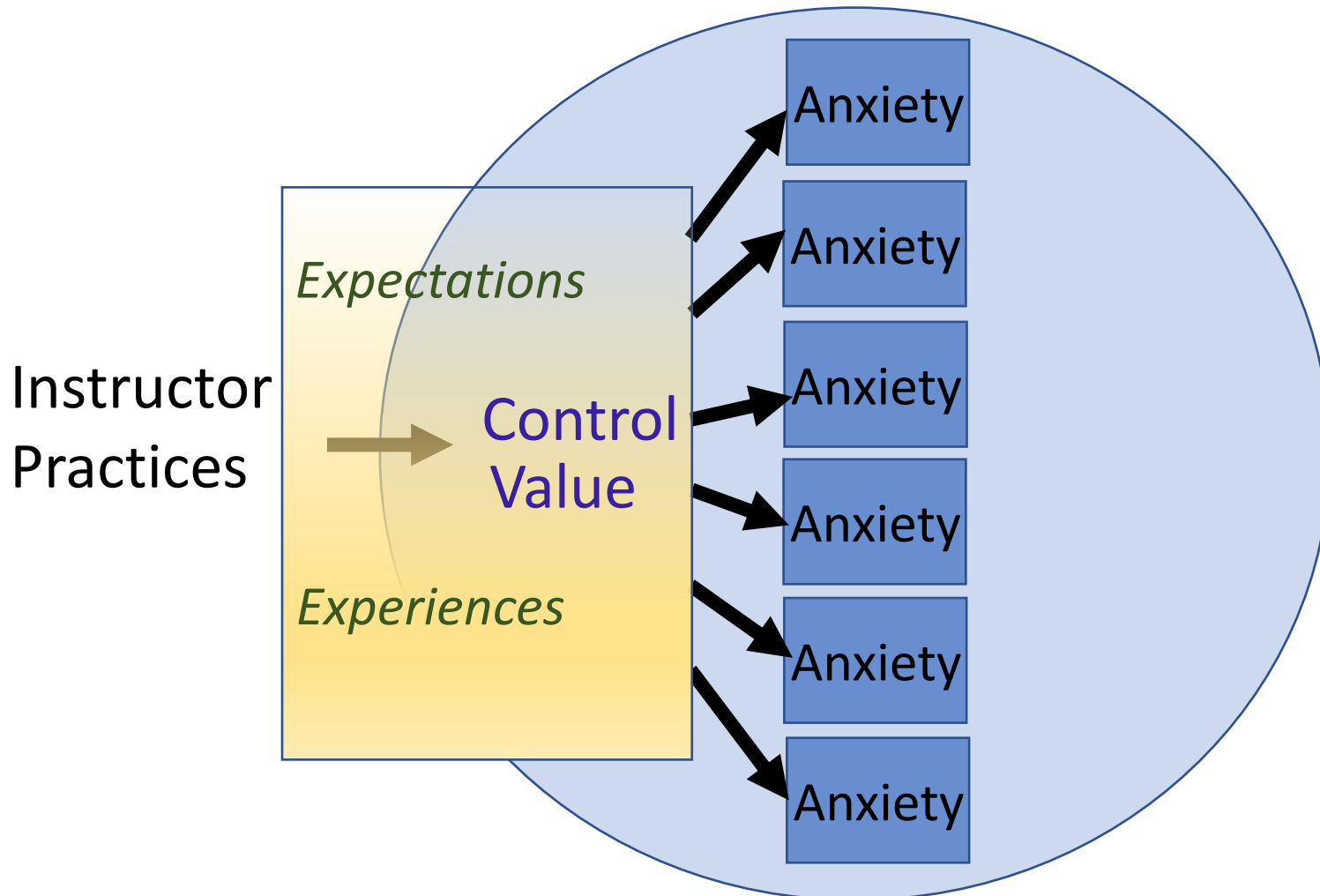
- Material is hard / complex
- Poor instruction
- Being confused / struggling to understand

- Amount of material / pace
- Unsupportive class activities
- Tests / quizzes

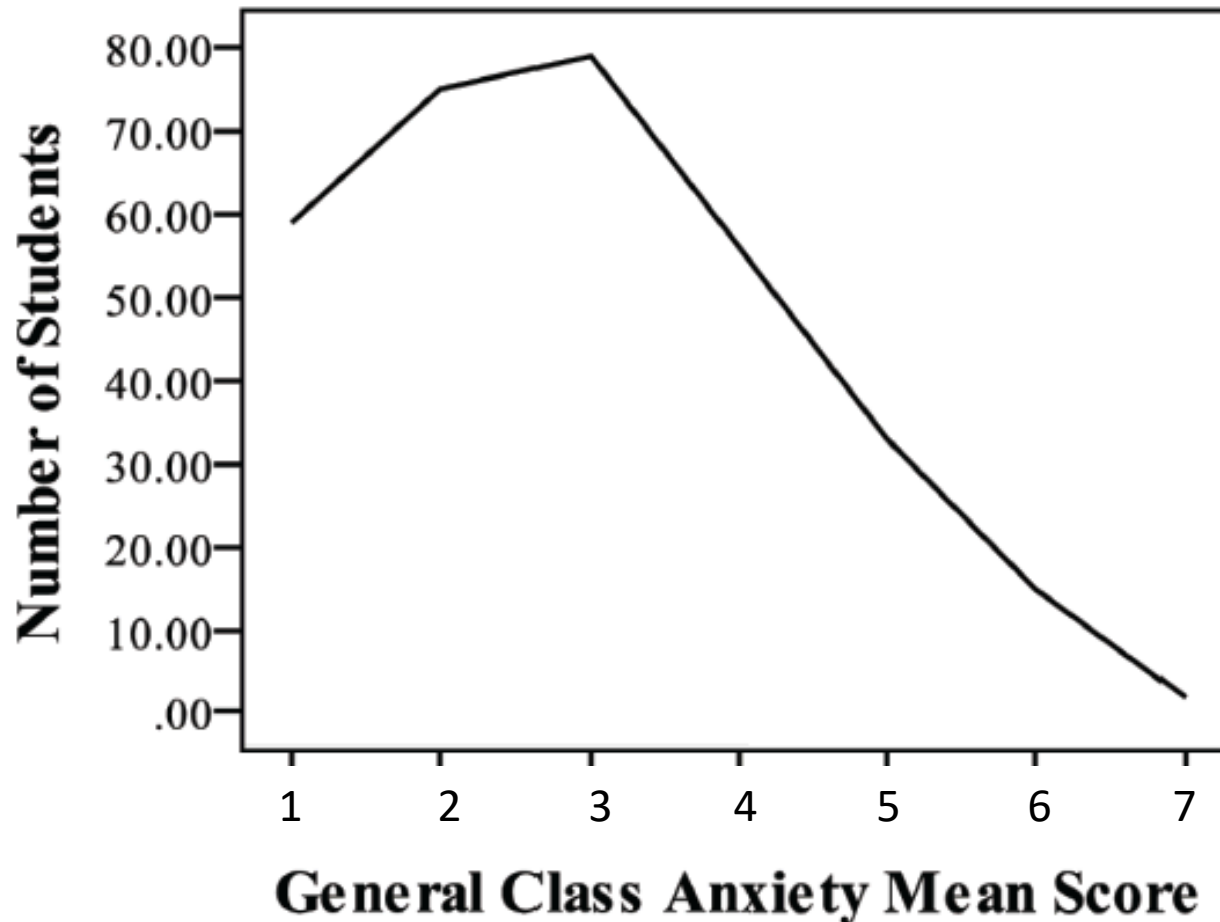
• Trying to take notes

Spring 2019, N = 195

Schussler, England, & Brigati, in prep



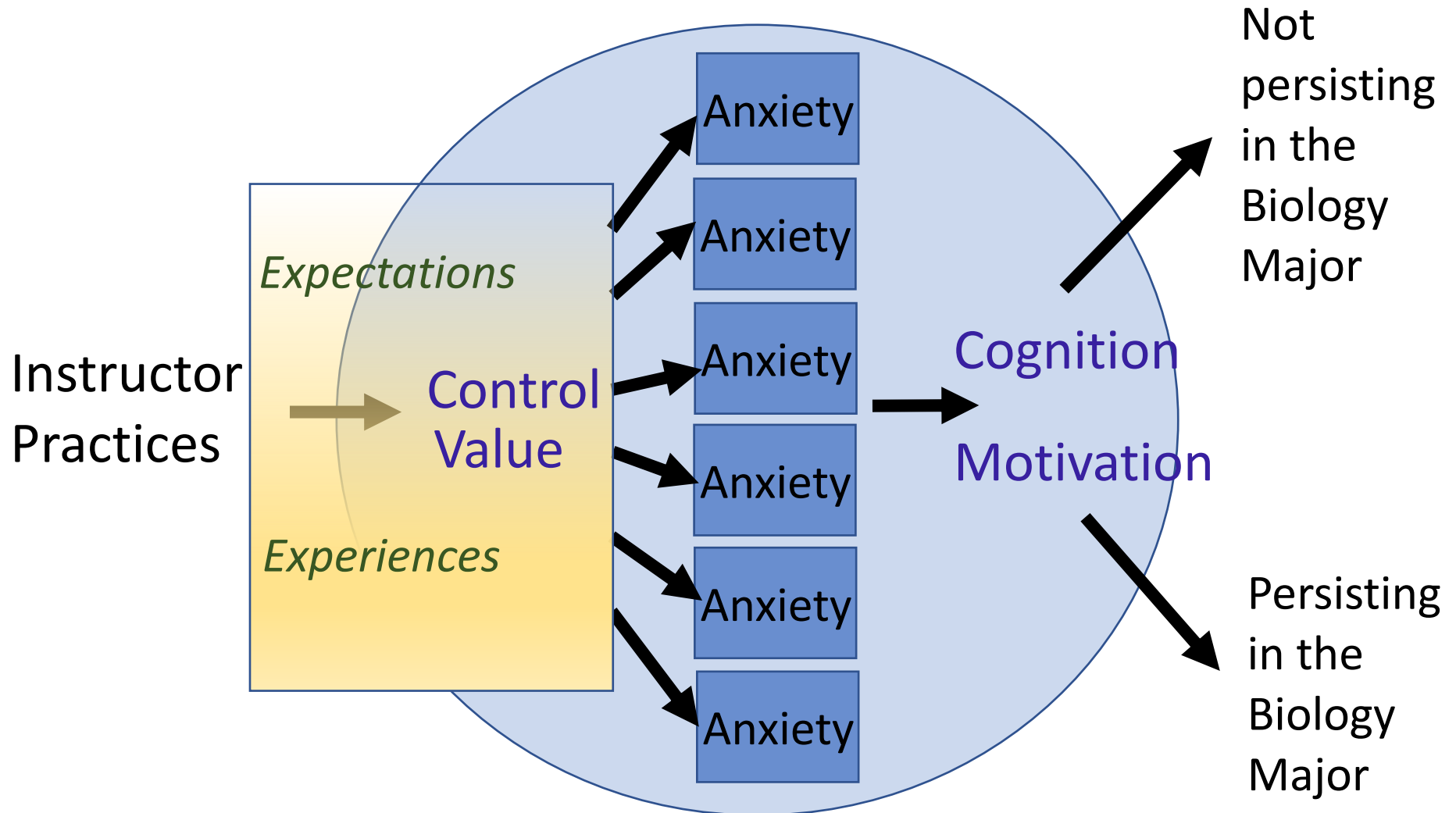
Student anxiety is not uniform in our classes



1 OEB, 2 CMB courses
N=319

England, Brigati, & Schussler, 2017

Persistence outcomes are not uniform



Today's Take-Home Points

Emotion is a “hidden curriculum”

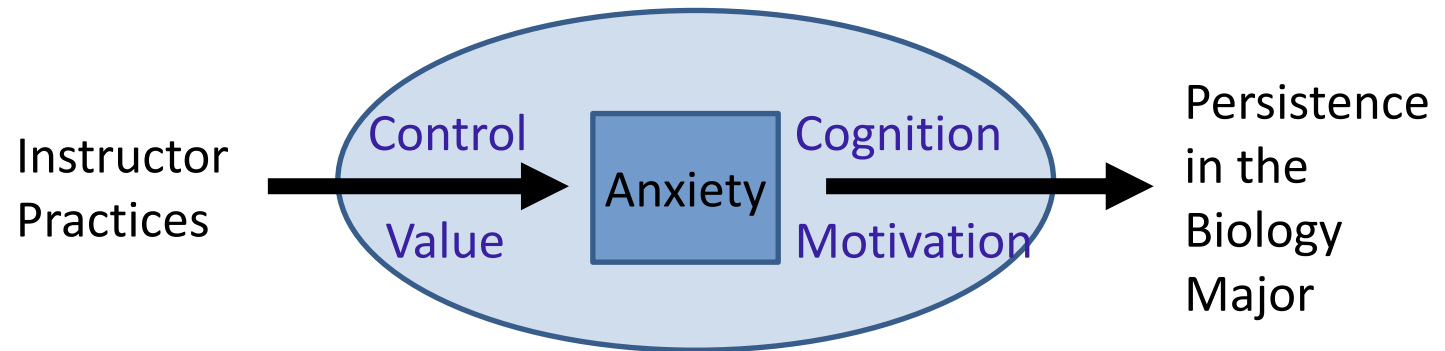
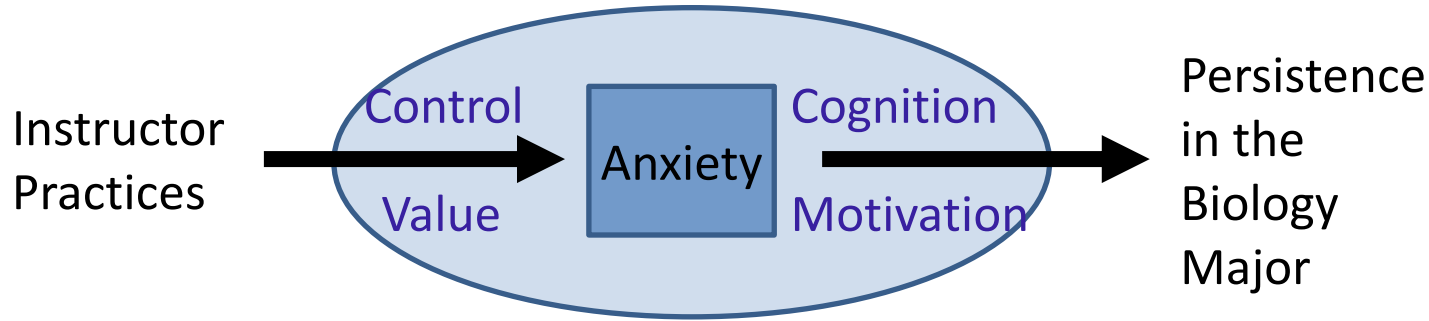
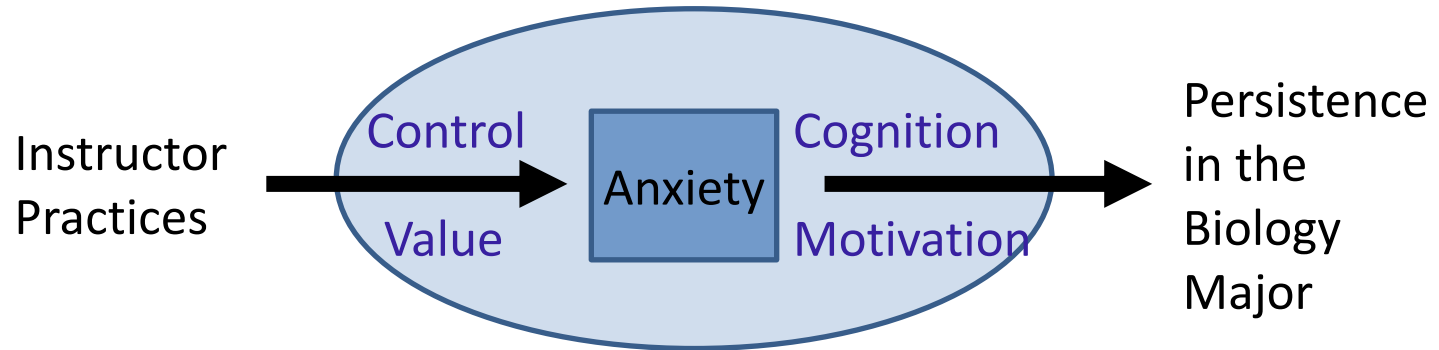
Student anxiety is shaped by the past and impacts the present and future in Intro Bio

As instructors, we also shape the student anxiety experience

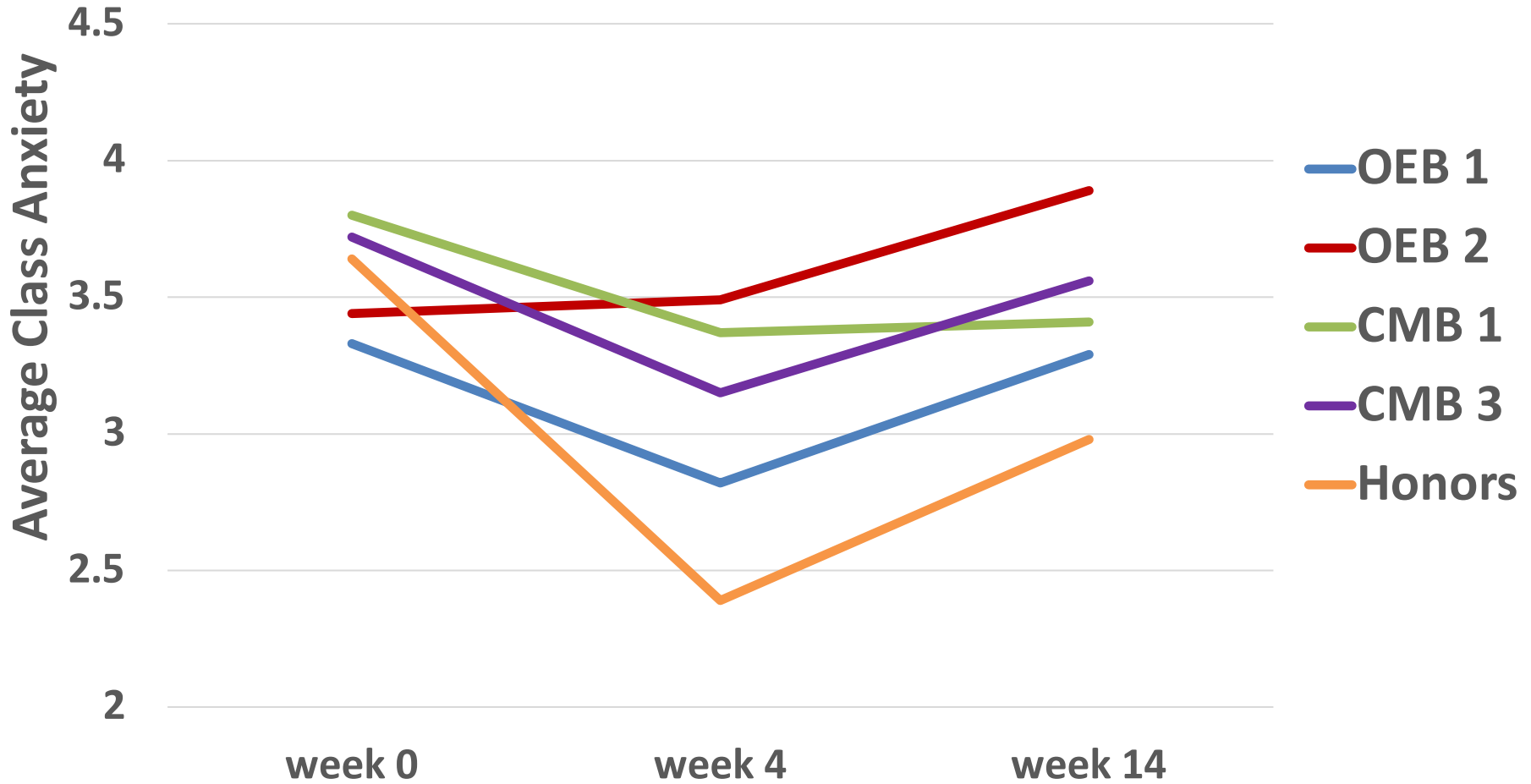
Instructor support may moderate anxiety

Attending to affect should be part of our curriculum planning

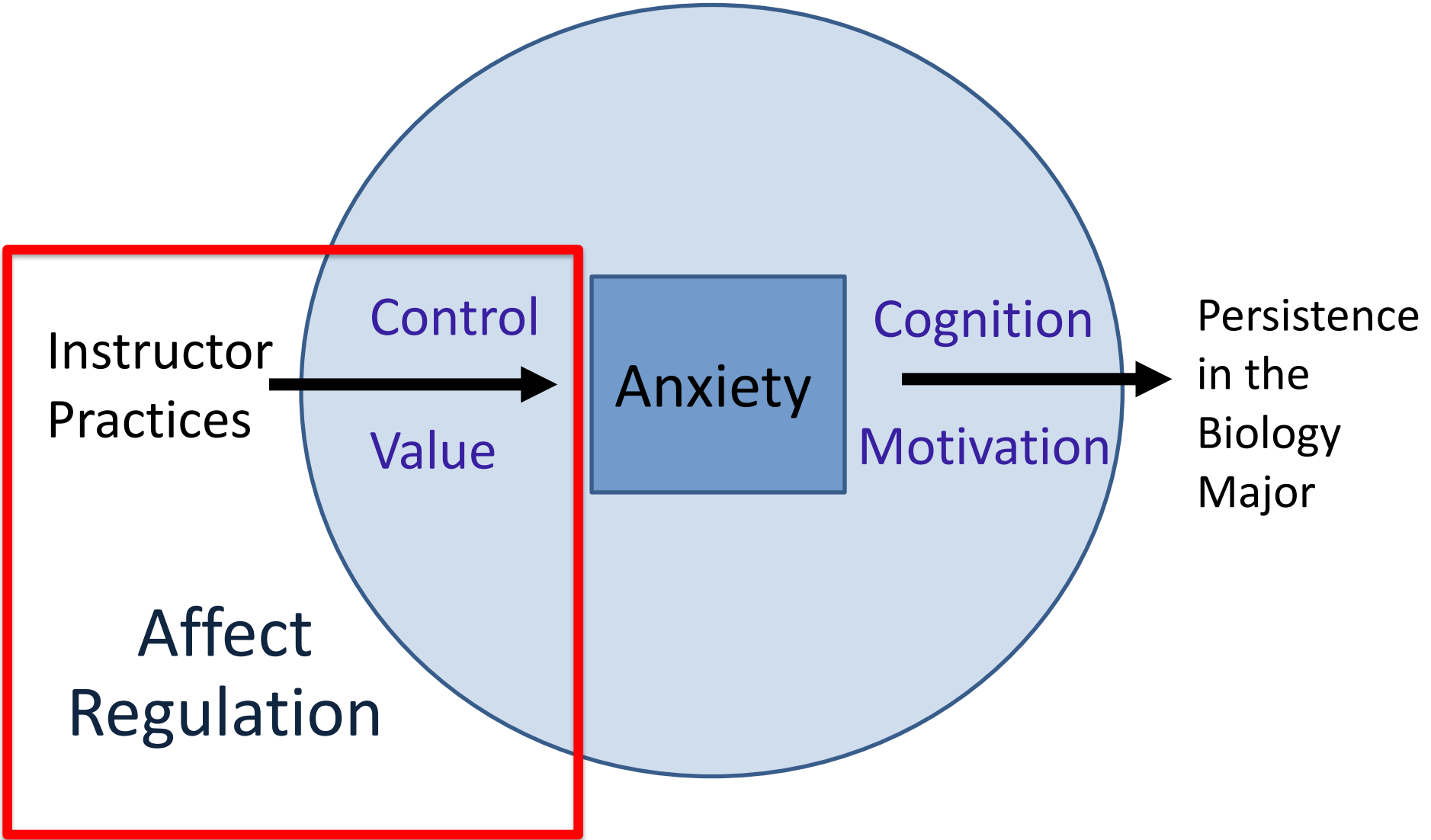
Each class has its own emotional climate



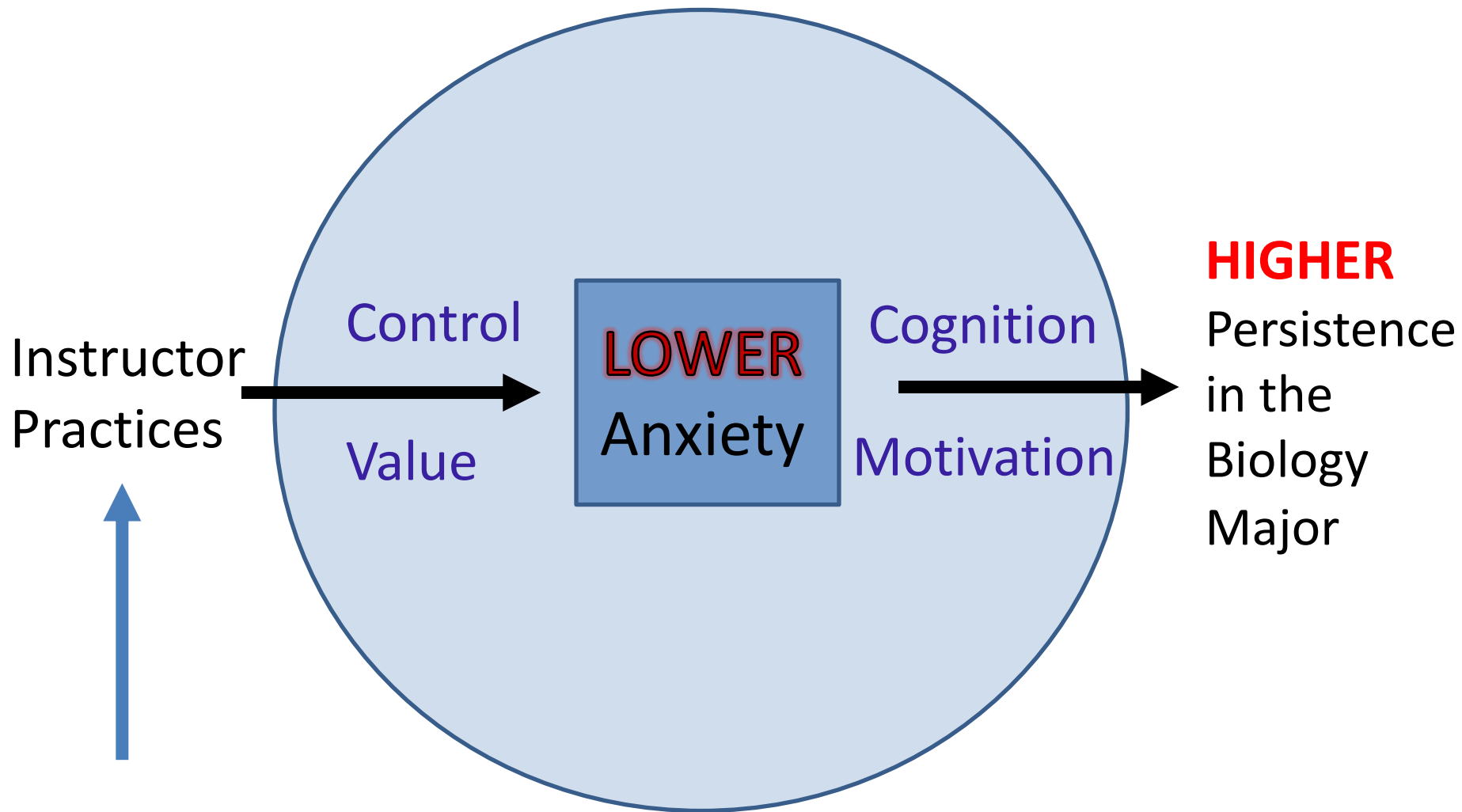
... and can vary over time for each class



Instructors impact class emotion

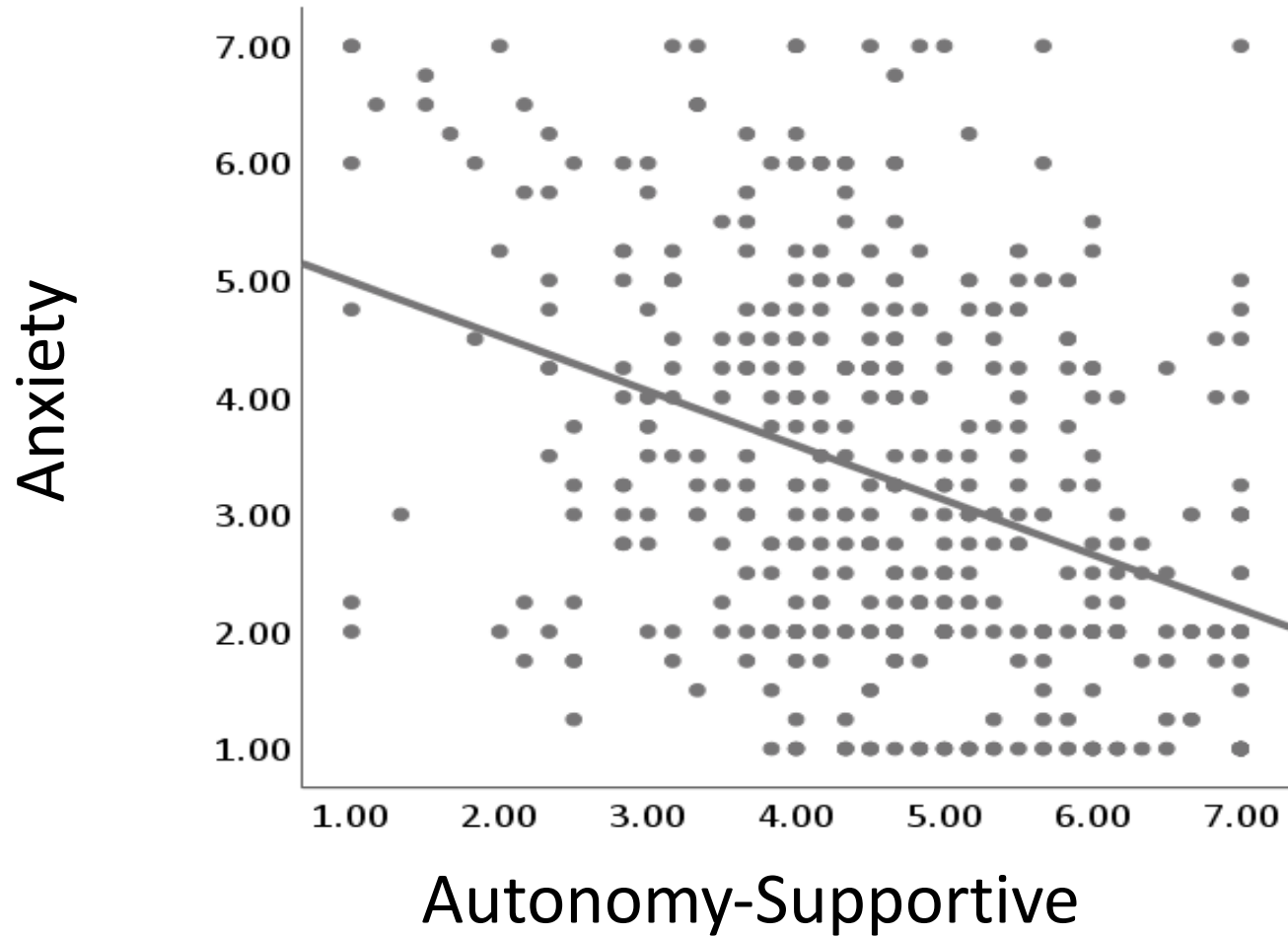


Strain and D'mello, 2015; Gross and Thompson, 2007



“intentionally crafting the impression we make on students in order to maximize their motivation and learning” Cavanagh, 2016, p. 8

$r = -0.38^*$, $N = 458$



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1. What do students think makes an instructor “supportive”?
2. What distinguishes instructors rated as higher or lower in support?

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

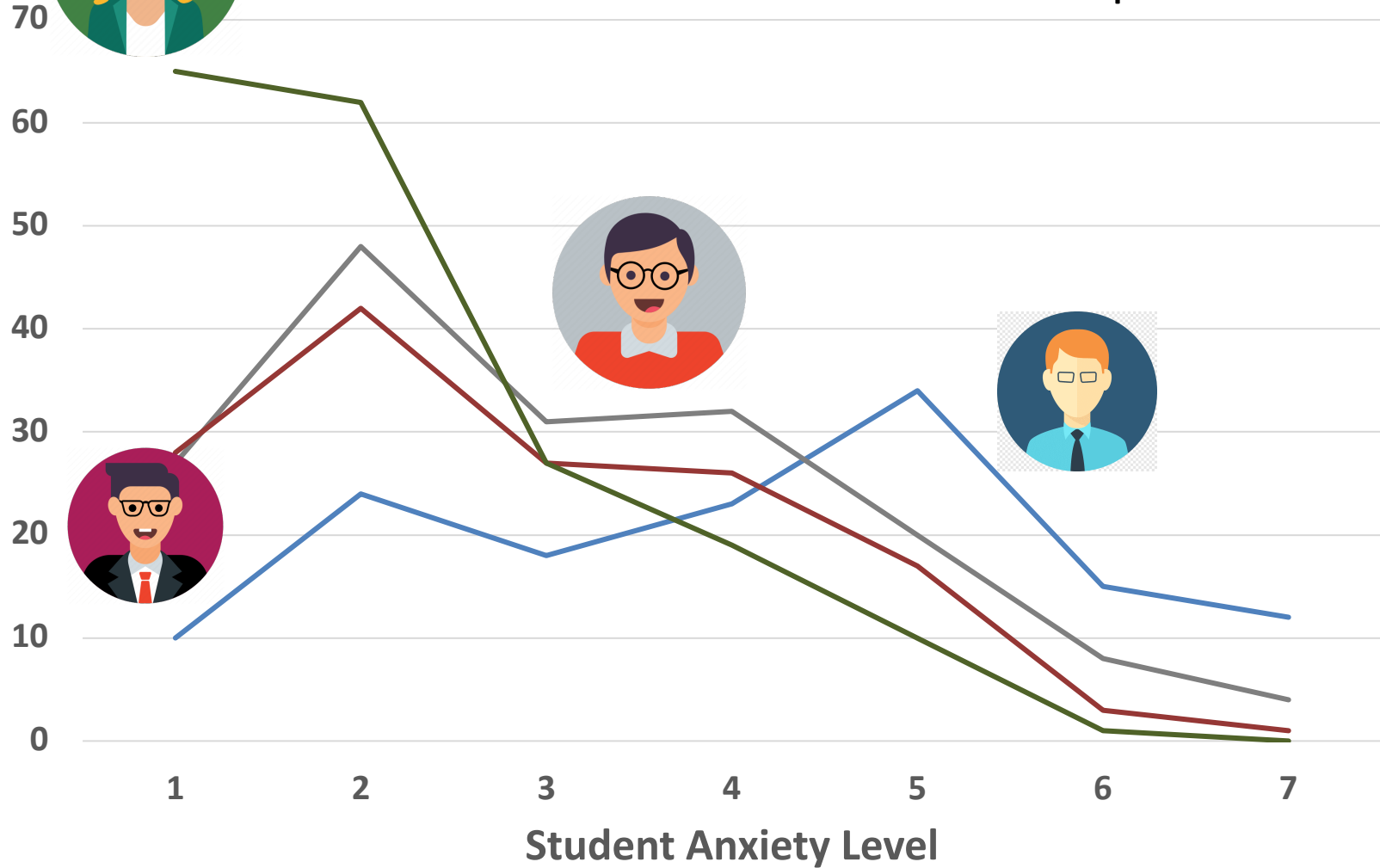
Instructor support;
10 = high support

Please explain why
you rated your
instructor's support
the way you did

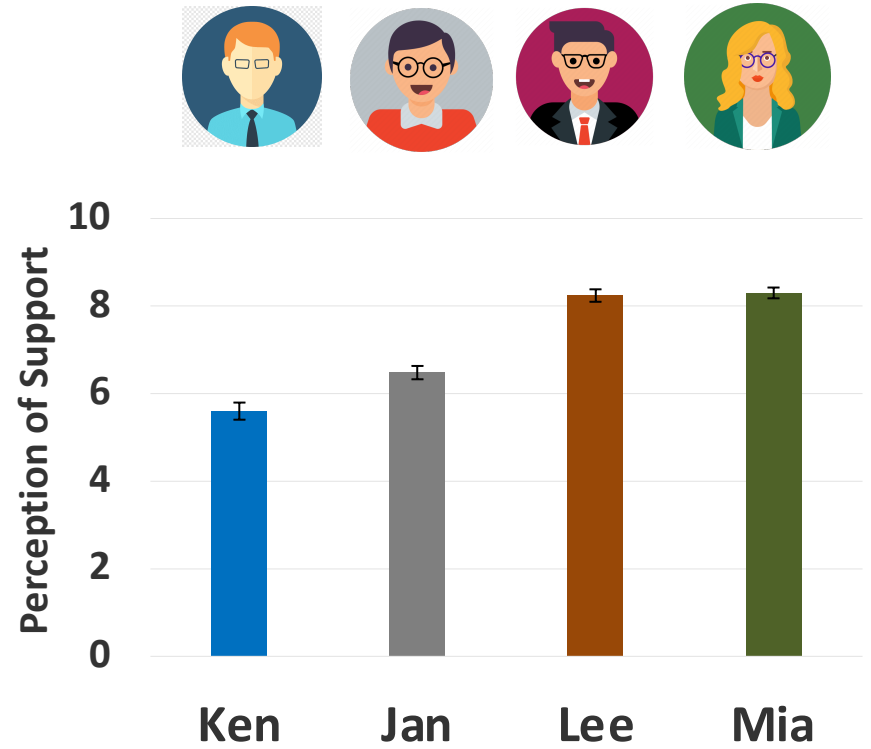
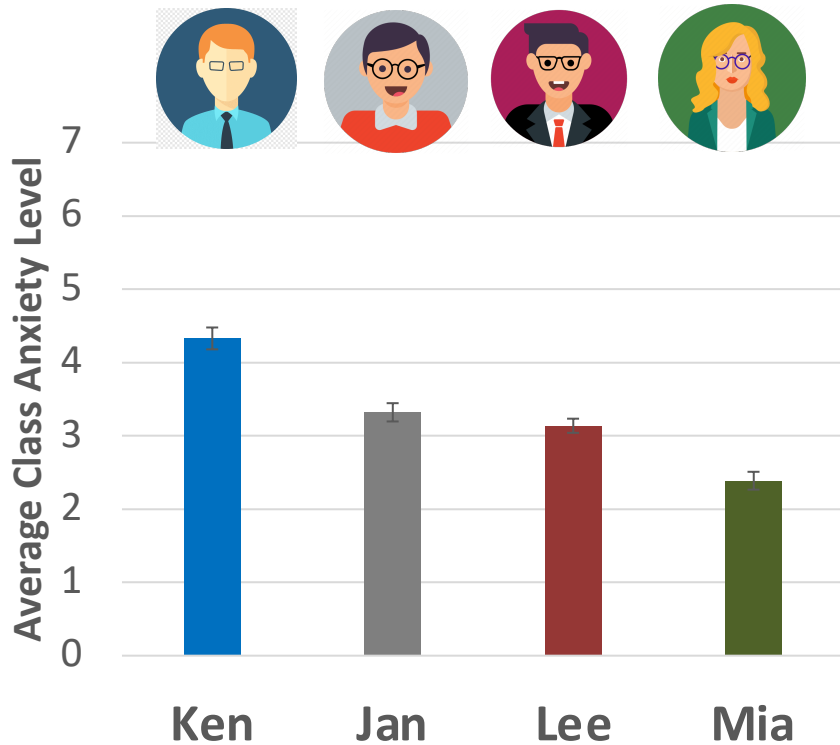
N = 635 students

N = 137-184 per class

Number of Students at each Anxiety
Range



—Ken —Jan —Lee —Mia



**Lower
support**

**Higher
support**

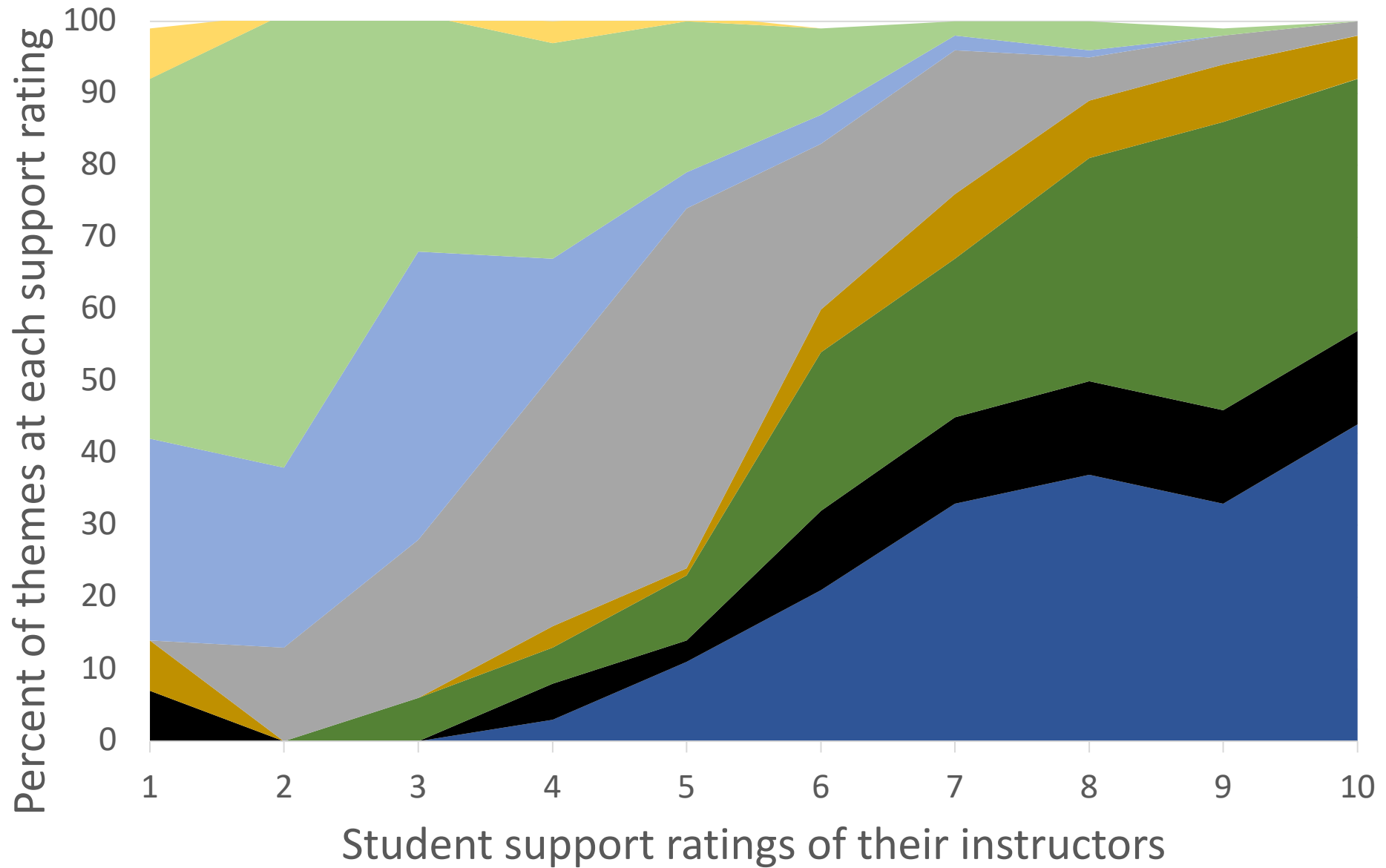
Anxiety / support correlation
 $r = -0.358, p < 0.01$

Mean +/- SE

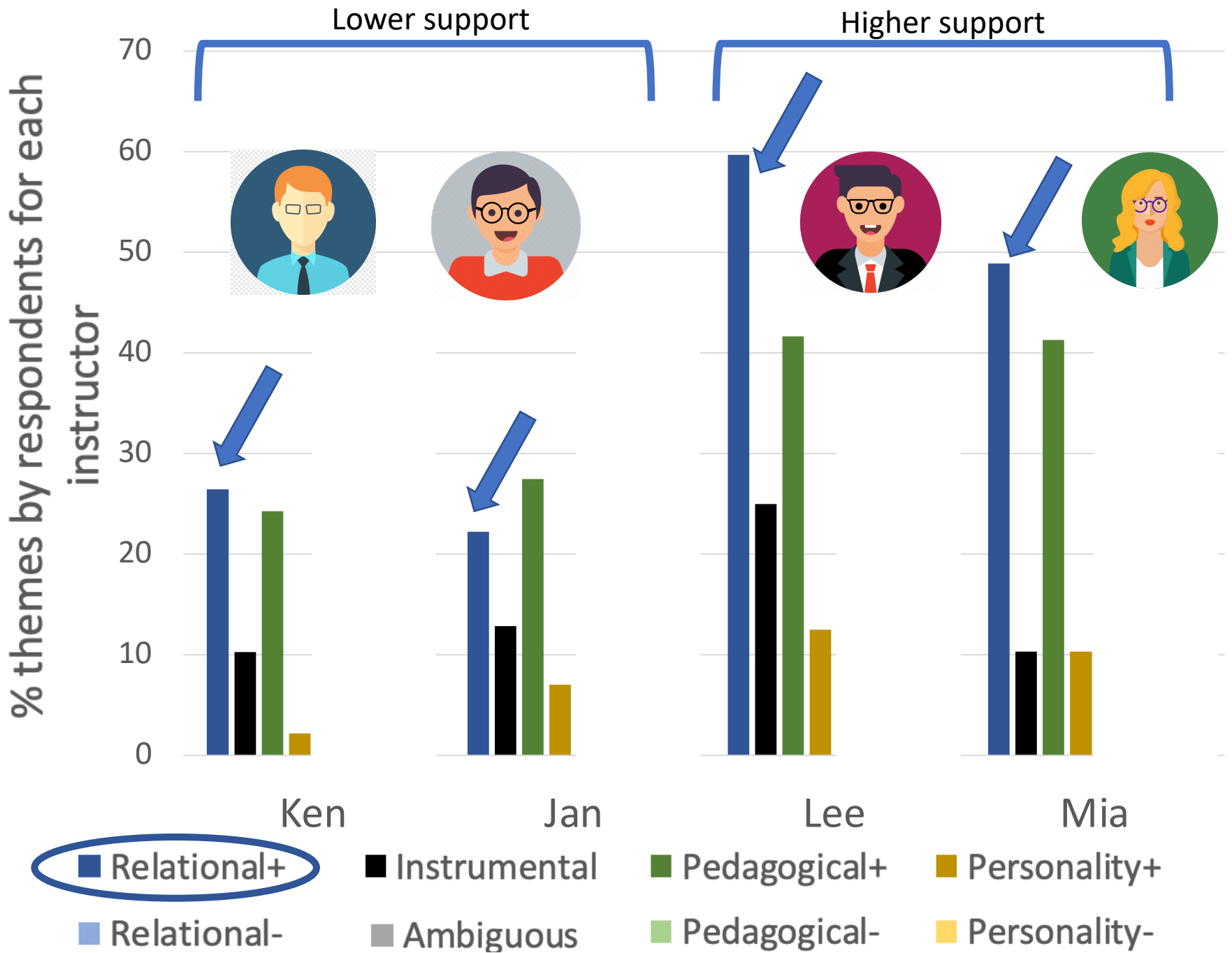
What do students say are characteristics related to instructor support?

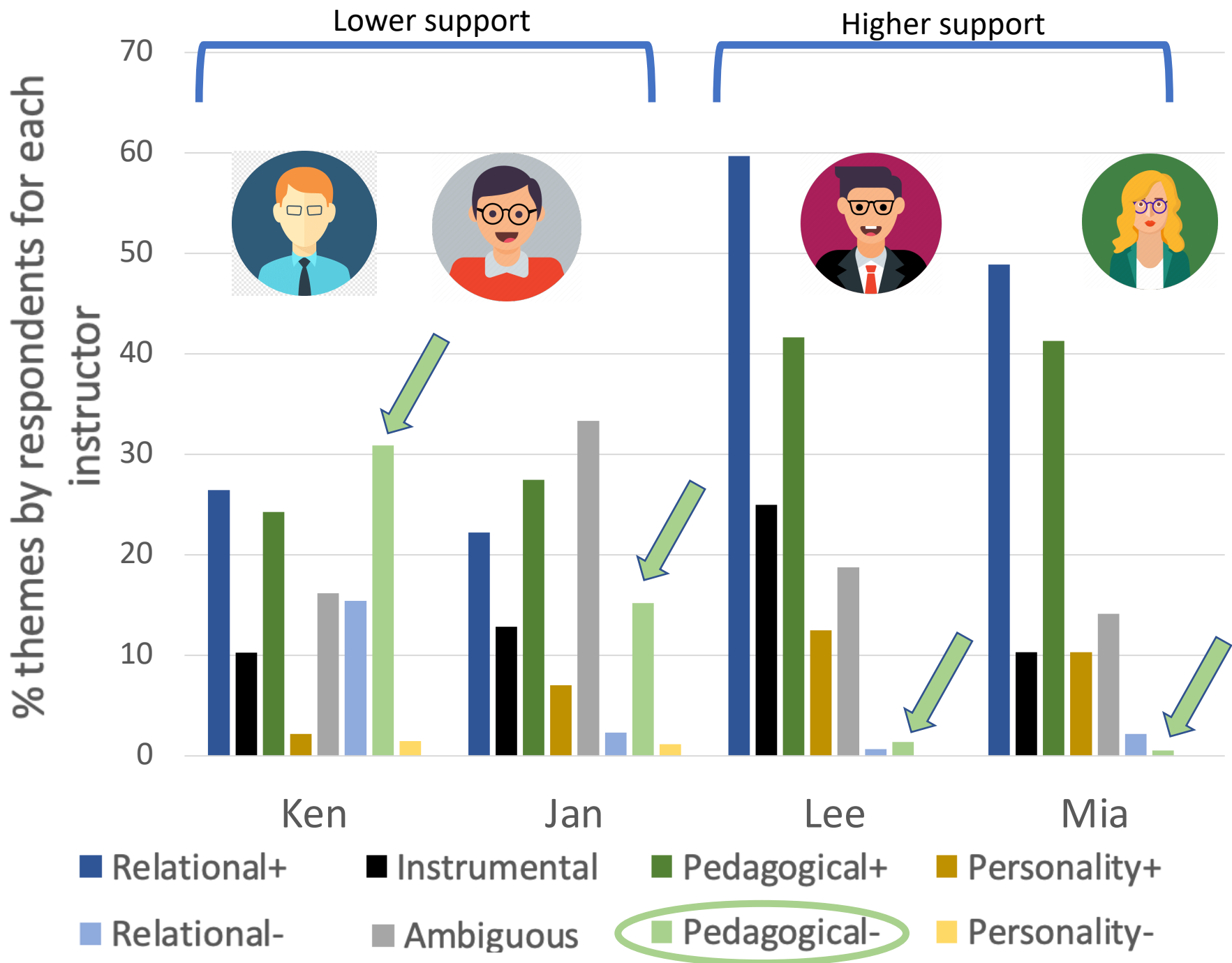


| Theme | Student description | Quote |
|--------------|---|--|
| Relational | Communication with instructor, feelings of instructor caring, helpfulness of instructor | <p>She takes the time to listen to me</p> <p>He does not act like he cares</p> |
| Instrumental | Instructor helping outside of class time. Office hours, resources, extra meetings | She holds help sessions right after class |
| Pedagogical | In-class instructor behaviors indicating caring about student learning | <p>She wants us to participate and do well in class</p> <p>He just does not teach in a style that works for me</p> |
| Personality | How they felt about the instructor or the way they perceived them to be | <p>She is not very personable</p> <p>He is super fun</p> |
| Ambiguous | Not knowing how supportive they were because they never talked with them | 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... |



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





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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)

Positive Relational

Instructor wants them to **succeed**

Instructor is **helpful**

Instructor **cares** about them

Instructor:
understanding,
encouraging,
there for us,
has faith in the class to do well

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

Negative Pedagogical

Goes **too fast** through the information

Doesn't listen to or understand **student questions**

Doesn't **explain things** well

Doesn't understand how **challenging** / difficult the class is

Just **reads the slides**; is boring

Expects students to learn it all **on their own**; doesn't help you meet their expectations

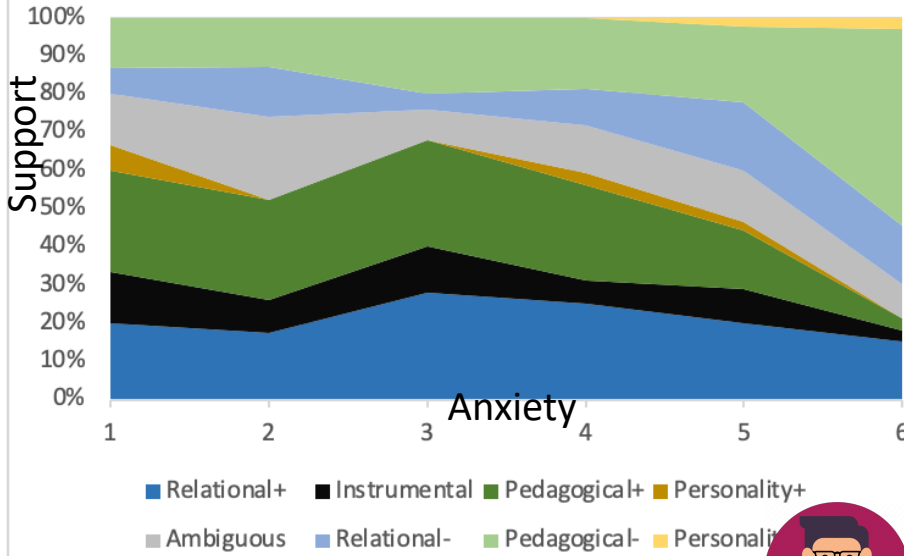
ASK if they are confused;
ACKNOWLEDGE that confusion is one stage of learning

ATTEND to class body language; PAUSE for questions

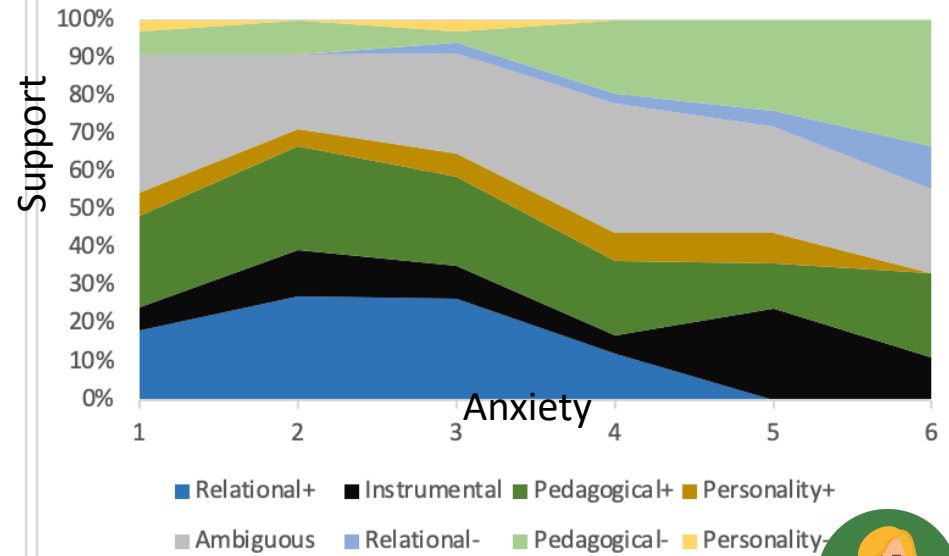
ALLOW for them to demonstrate learning in multiple ways; PROVIDE feedback



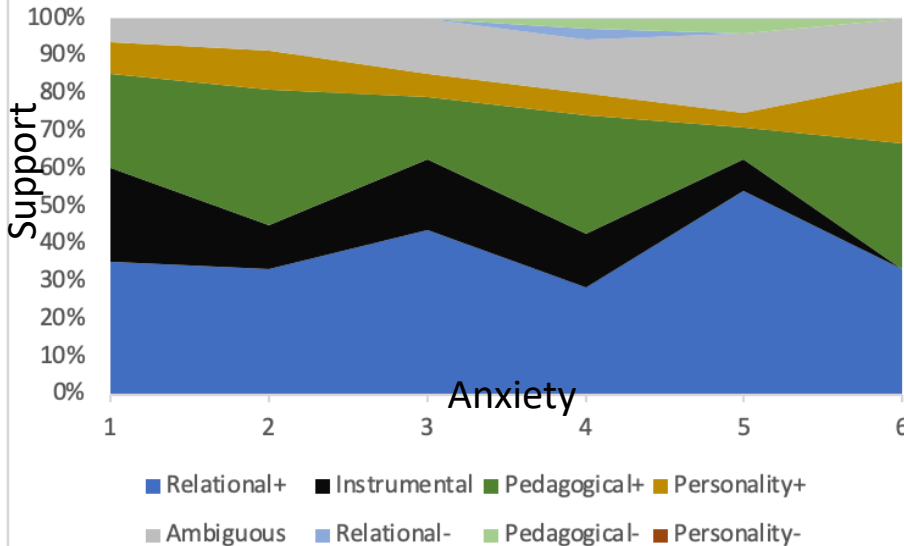
Ken - lower support



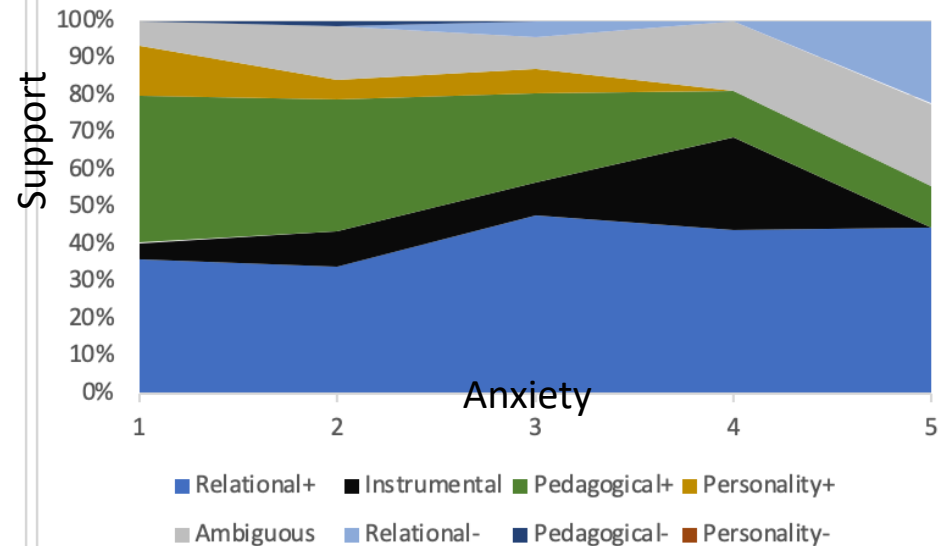
Jan - lower support

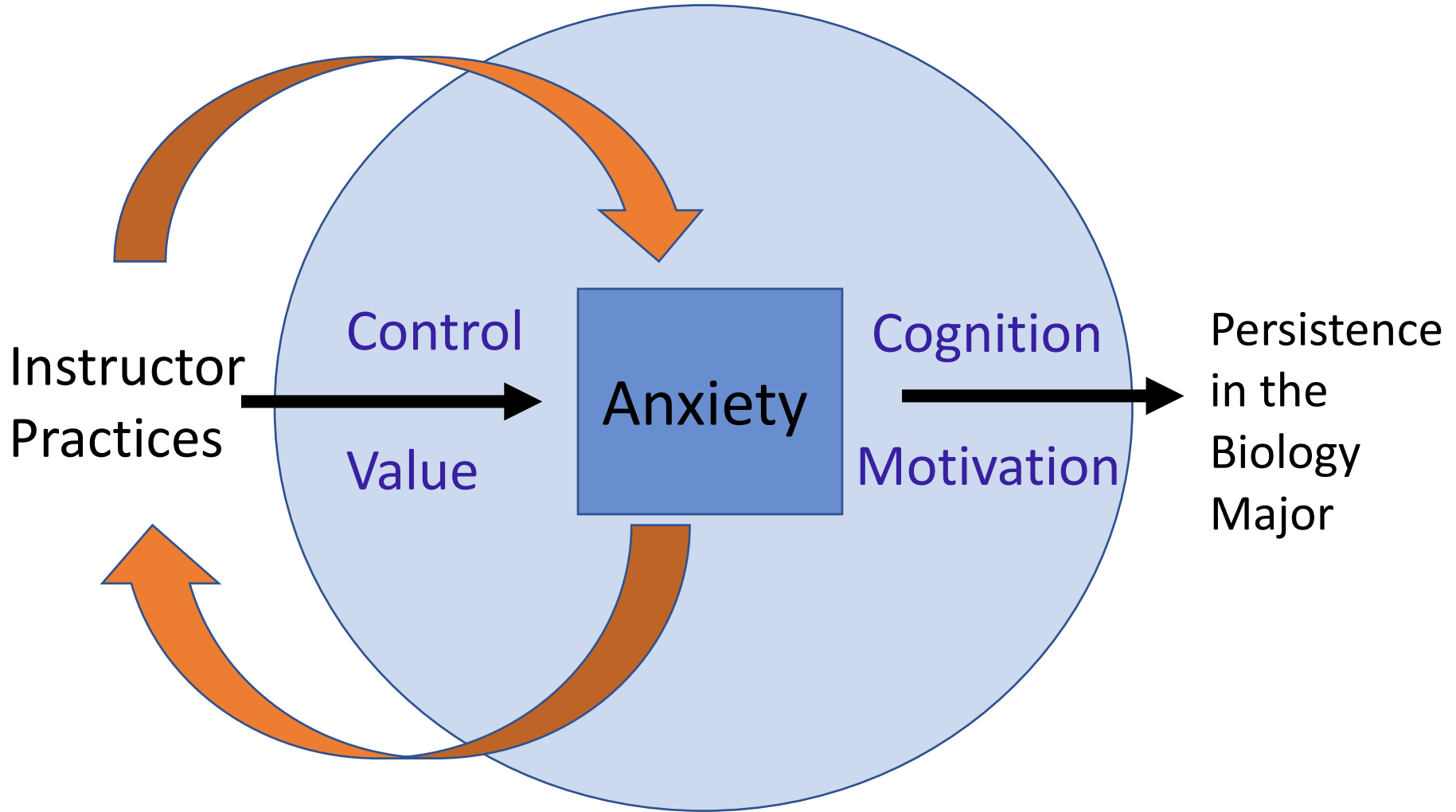


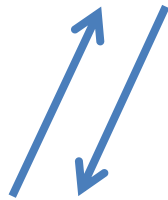
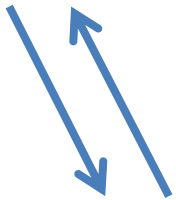
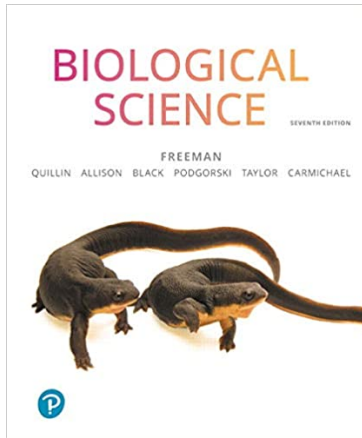
Lee - higher support



Mia - higher support







Emotions can be moderated by our words, gestures, deeds, policies

Students are attending to these practices

We should too!



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