

Introduction

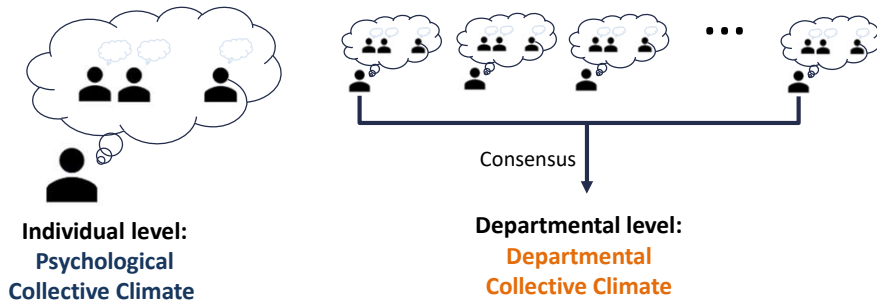


Figure 1. Psychological versus Departmental collective climate

Psychological collective climate: Individual faculty member's description of their colleagues' perceptions of the climate within their department.

Departmental collective climate: Consensus view of departmental climate among respondents within the same department.

Psychological Collective Climate could not predict STEM faculty's instructional practices.

Departmental Collective Climate could not be measured.



Scan Me

Research Questions

1. To what extent do different types of *psychological collective climate around teaching* exist within STEM departments?
2. To what extent does a *departmental collective climate around teaching* exist at the departmental level?
3. To what extent does the *psychological collective climate around teaching* and *departmental collective climate around teaching* relate to the use of learner-centered instructional practices within a department?

Methods

Instruments: Departmental Climate around Teaching (DCaT) survey and abbreviated Measurement Instrument for Scientific Teaching (MIST). **Participants:** 166 faculty members from 22 STEM departments in the U.S. **Analysis:** Mixture Model Clustering (MMC) was used to identify the types of *psychological collective climate around teaching*; Inter-rater agreement ($r_{wg(I)}$) and intra-class correlation coefficients (ICC(1), and ICC(2)) were used to identify constructs that would measure the *departmental collective climate*; Simple linear regression was used to explore if the *psychological collective climate around teaching* related to the instructors' use of learner-centered instructional practice.

Results

Types of *psychological collective climate around teaching*

Constructs	Type of climate (Estimated model proportion)			
	Negative (13%)	Slightly Positive (38%)	Positive (33%)	Very Positive (16%)
Involvement	2.4	3.7	4.0	4.5
Growth	1.9	2.9	3.3	4.1
Autonomy	4.2	3.7	4.1	4.1
Supervisor Support	2.6	3.3	4.1	4.6
Innovation	2.3	3.3	3.5	4.4
Outward Focus	2.2	3.3	3.9	4.4
Achievement	3.1	3.7	4.2	4.7
Performance Feedback	1.7	2.4	3.3	4.1

Survey response options: 1- Strongly Disagree, 5- Strongly Agree

Relationship between *psychological collective climate around teaching* and use of learner-centered instructional practices

- A simple linear regression demonstrated that faculty members' view of *psychological collective climate* around teaching within their department could not be used to predict instructors' use of learner-centered instructional practices - $F(3,145) = 1.029, p = 0.382$ with an $R^2 = 0.021$.

Measures of agreement ($r_{wg(I)}$) and measures of consistencies (ICC)

Construct	ICC		$r_{wg(I)}$		
	ICC(1)	ICC(2)	Dept. 16	Dept. 17	Dept. 22
Involvement	0.067	0.410	0.114	0.872	0.735
Growth	0.139	0.610	0.779	0.805	0.853
Autonomy	-0.088	-3.595	0.886	0.876	0.938
Supervisor Support	0.017	0.140	0.810	0.928	0.897
Innovation	0.005	0.043	0.845	0.775	0.868
Outward Focus	0.268	0.781	0.771	0.954	0.871
Achievement	0.087	0.480	0.790	0.949	0.928
Performance Feedback	-0.041	-0.611	0.400	0.618	0.734

Values that were above (ICC) or below ($r_{wg(I)}$) thresholds are bolded

Measure of *departmental collective climate* around teaching

- Only one construct met all threshold: Outward Focus, which measures the extent to which the department is responsive to the needs of students.
- This study points to challenges in measuring *departmental collective climate*.