



Why Do Students Choose to Recommend Some Professors?

Understanding Student Perceptions of Instructors
Through Mixed-Methods Research

Technical Report



Association of College and University Educators

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1. Executive Summary

Understanding student perceptions of their instructors is crucial for fostering student success and improving retention rates. These perceptions significantly impact student motivation and engagement, offering insights into the aspects of students' experiences that drive satisfaction and influence academic achievement. This study utilizes data from the Association of College and University Educators' (ACUE) Student Survey (1,388 responses) to comprehensively examine students' course experiences and perceptions of their instructors.

The main objective of this study was to identify recurring themes in student feedback about the likelihood of their recommending an instructor and to examine the relationships of these themes with student, course, and instructor characteristics. Employing a mixed-methods approach, specifically the Meaning Extraction Method (MEM), this study aimed to determine if certain student demographic factors, instructor characteristics, and course features are associated with specific themes in students' responses and ratings.

Key Findings

- **Identified Themes:** Seventeen distinct sub-themes were grouped into four main themes: Instructional Clarity, Student Support, Perceived Attributes of the Instructor, and Active Learning.
- **Differences in Themes Based on Demographic Characteristics and Academic Context:** Student, instructor, and course characteristics were significantly associated with student feedback. It was observed that students' race/ethnicity and class standing significantly influence the aspects of instructors or course experiences that students prioritize when evaluating their instructors. For instance, Latino students emphasized instructor support, Black students prioritized factors beyond instructional clarity, and Native American students prioritized interconnectedness with instructors and support. Additionally, older students (over 24 years old) valued instructor attributes (e.g., professionalism, kindness) more than younger students, and students in later academic stages highlighted clear expectations, instructor care, and teaching style in their evaluations.
- **Demographic and Contextual Factors Associated With Higher Instructor Ratings:** It was observed that Latino and older students, those from minority-serving institutions (MSIs), and students in later academic stages rated their instructors more favorably. Non-tenure-track instructors and those with fewer years of experience received higher recommendation scores. Face-to-face courses and smaller class sizes were also associated with higher instructor ratings.
- **Themes Impact on Instructor Recommendation Scores:** Themes related to student support and the instructor's perceived kindness and excellence significantly impacted recommendation scores, highlighting the importance of supportive interactions and instructors' personal and professional qualities.



This study highlights the multidimensional nature of student perceptions, emphasizing the importance of clear communication, supportive practices, positive connections with students, and engaging teaching methods in fostering a positive learning environment. Understanding these diverse factors can inform faculty development efforts to enhance teaching effectiveness, foster supportive learning environments, and promote student success across diverse populations.

2. Introduction

Decades of research have identified a body of instructional practices shown to improve student engagement, persistence, learning, course completion, and retention (e.g., Armbruster et al., 2009; Burrowes, 2003; Freeman et al., 2011; Mazur, 2009). Moreover, the impact of effective teaching extends beyond academic achievements, as it is also associated with non-academic benefits including students' civic engagement, sense of purpose, and interpersonal skills (Gallup & Strada Education Network, 2018; Mayhew et al., 2016).

However, when students recommend a professor to peers, to what extent does effective teaching inform their advice? Are their recommendations based on whether the instructor is an easy grader and the amount of homework assigned? Or do they respond favorably to instructors' use of evidence-based practices, regardless of whether students realize they are based in evidence? Moreover, if students do consider evidence-based practices when recommending instructors, do they consider the full scope of effective teaching practices, or do they focus on specific areas, such as instructors' ability to engage students in active learning?

Understanding student perceptions of their instructors is essential for fostering student success and improving retention rates. These perceptions can significantly impact student motivation and engagement, thus studying them can provide valuable insights into the aspects of course experiences that drive student satisfaction and influence academic achievement. Exploring the reasons behind students' likelihood to recommend or not recommend an instructor is crucial for enhancing instructional efficacy and student satisfaction.

This study examines the student perceptions of instructors who took part in ACUE's comprehensive Effective Teaching Practice Framework courses by analyzing data from the ACUE Student Survey. This survey gathers information about student learning experiences including their perceptions of instructors. Through a mixed-methods approach, this research aims to attain nuanced insights into the types of experiences and factors that resonate most with students across diverse demographic groups. This approach can provide valuable information on what truly matters to students from different backgrounds, going beyond simple ratings of an instructor to uncover the underlying themes behind student perceptions. Exploring the association between specific student, course, and instructor characteristics and the themes emerging from students' open-ended feedback can elucidate the factors contributing to student engagement and satisfaction in educational settings, as well as inform the development of more supportive and effective learning environments that cater to the different needs of all students.



This study considers a broad range of student demographic characteristics, covering different ethnic backgrounds, academic stages, and institutional types, as well as diverse instructor traits including demographic and instructional characteristics. Previous research has often concentrated only on specific student demographics, instructor traits, course formats, or disciplines (Clayson, 2019; Martin, Chesebro, & Mottet, 1997; Schussler et al., 2021). The comprehensive approach of the present study ensures that the findings reflect the diverse student body in higher education today and their interactions with various instructor types. Additionally, it incorporates feedback from students at MSIs and 2-year institutions, who are often overlooked in this type of research, highlighting the unique perspectives and needs of these student populations.

This study provides insights into the multidimensional nature of student evaluations using a bottom-up approach, revealing how different student groups prioritize various aspects of their instructors' teaching practices and characteristics. This is a significant advancement over previous studies that typically examined isolated factors in student evaluations (Martin, Chesebro, & Mottet, 1997). By identifying

ACUE's approach can provide valuable information on what truly matters to students from different backgrounds, going beyond simple ratings of an instructor to uncover the underlying themes behind student perceptions.

themes and their associations with different student and instructor traits, this study offers actionable data that can inform targeted improvements in teaching practices based directly on students' experiences, needs, and values.

Additionally, prior studies have relied solely on quantitative survey responses or qualitative data by either employing closed-ended surveys or mainly focusing on open-ended feedback about instructors (Elson et al., 2018; Lee, 2010; Otter et al., 2013). In contrast, this study integrates both quantitative ratings and qualitative open-ended responses using a novel mixed-method approach, the Meaning Extraction Method (MEM) (Chung & Pennebaker, 2008).

Unlike traditional qualitative content analysis, which relies heavily on human judgment and is susceptible to biases, MEM employs quantitative dimension-reduction techniques to identify clusters of words that reflect semantic patterns. This approach facilitates a more objective, efficient, and comprehensive analysis of large, complex text datasets by combining quantitative techniques with qualitative inductive theme identification (Markowitz, 2021). As a result, MEM provides nuanced insights into the underlying themes within student feedback on their instructors while preserving objectivity in the analysis. Furthermore, while MEM has been mainly used in psychology, its application in this research is pioneering in the education field, providing value by allowing for the analysis of deep, multidimensional text data related to teaching practices and student engagement and satisfaction.

This study aspires to contribute valuable knowledge to the field of higher education, specifically about student engagement and satisfaction, by identifying the factors that contribute most significantly to positive learning experiences. Improved understanding of student priorities and instructor perceptions has the potential to inform student success efforts, leading to more supportive and engaging teaching practices that cater to the diverse needs of all students. The insights gained from this research will also contribute to the current body of knowledge on student engagement by better understanding student



experiences and priorities and by exploring the nature of potential biases towards different types of instructors in their evaluation process to ensure fairness in future initiatives involving instructor–student interactions.

3. Methodology

Data Collection

The study utilized data from ACUE’s Student Survey administered to students of some faculty participants ($N = 131$) in courses leading to certification in ACUE’s Effective Teaching Practice Framework during the fall 2022, spring 2023, and fall 2023 terms. The instructors participating in cohorts that opted into the student survey were asked to send their students a link to complete this survey at the end of each semester during their ACUE course with instructor participation being optional.

Participants included 1,615 students from 22 higher education institutions (16 4-year and six 2-year institutions) across nine states. After removing irrelevant responses that were not apt or too short for analysis, 1,388 responses were deemed adequate to be included in the analytic sample.

Instrument

ACUE Student Survey. ACUE’s student survey comprehensively captures students’ course experiences and perceptions of their instructors. This survey includes several measures, such as an instructional practices scale, which has shown no evidence of bias based on faculty gender or race/ethnicity (Association of College and University Educators [ACUE], 2022), an academic self-efficacy scale, and growth mindset measures. Among these scales, students were asked to rate the likelihood of recommending their instructor (“How likely are you to recommend this instructor to a friend?”) on a 5-point Likert scale (ranging from 1 = “Very unlikely” to 5 = “Very likely”) and to respond to an open-ended question elaborating on their rating (“Please elaborate on your choice for the previous question.”). Additionally, the survey includes questions about students’ demographics and background related to the course such as their reasons for enrolment.

Sample Description

Excluded Data

A total of 227 responses were excluded from the analysis due to not having usable data. The average instructor recommendation rating across the excluded data was 4.44 ($SD = 0.87$). Among the excluded responses, 87% were from Recommenders (students who rated their instructors with ratings of 4 or 5), while 13% were from Non-recommenders (ratings below 4).

The exclusions were due to “empty responses” and responses with fewer than seven words, which were deemed not suitable for analysis. Specifically, 27 responses were categorized as “empty,” including entries like “N/A,” “No comments,” “No,” or emojis. Additionally, 200 responses contained fewer than

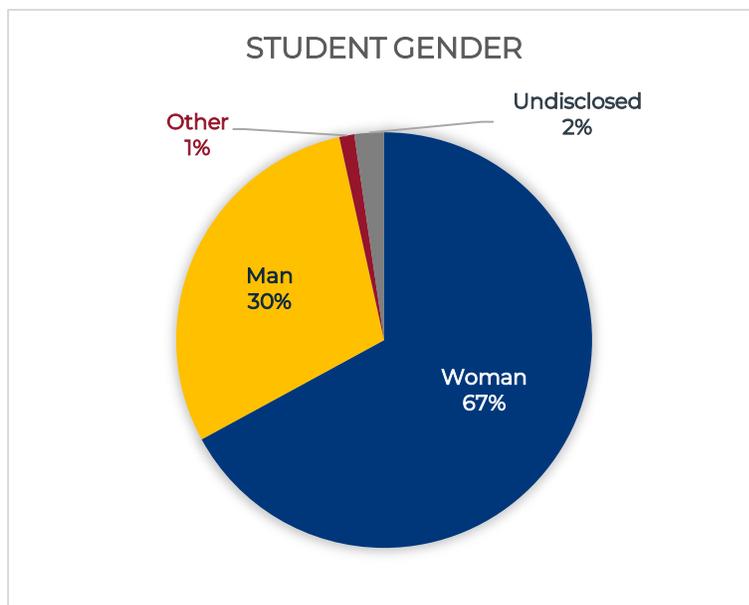
seven words. Of these, 91% were from Recommenders, with responses such as “*Good professor,*” “*Awesome class,*” and “*He/She’s great.*” The remaining 9% were from Non-recommenders, with responses like “*Standard experience,*” “*That is just my opinion,*” and “*I just don’t like her.*” These responses were excluded to ensure the integrity and depth of the qualitative analysis by including only responses that provided enough valid information for use with MEM.

Student Demographics

Gender: Thirty percent of students identified as men, 67% as women, 1% as non-binary or other, and 2% chose not to disclose this information¹ (see Figure 1).

Figure 1

Proportion of Students by Gender in the Sample (Exclusive Categories)

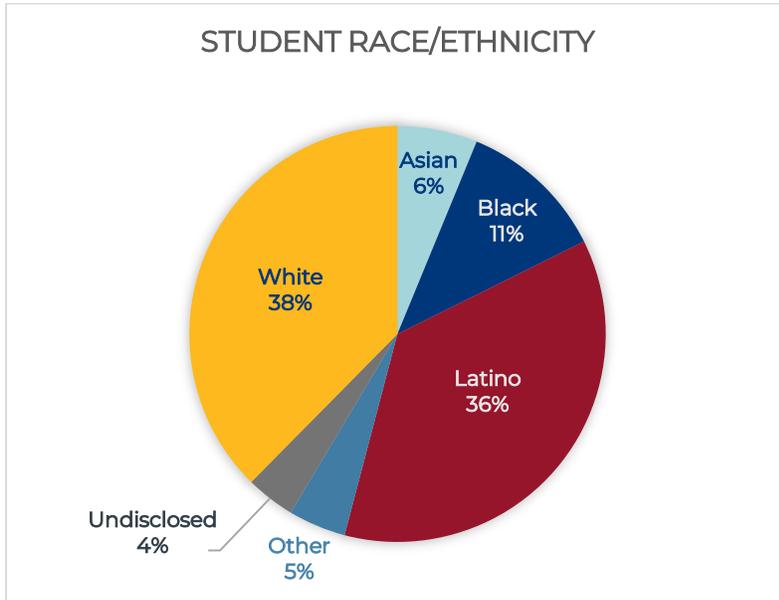


Race and Ethnicity: Thirty-eight percent identified as White only, 36% as Hispanic or Latino only, 11% as Black or African American only, 6% as Asian only, 5% as other races or ethnicities (which includes Native American, mixed-race, Pacific Islander, and Middle Eastern students), and 4% did not disclose their race or ethnicity (see Figure 2). It is important to note that while students could select multiple race/ethnicity options, these proportions represent exclusive categories, whereas the analyses were performed using non-exclusive categories. For the analyses based on race and ethnicity, only non-exclusive categories that accounted for over 5% of the analytic sample were considered, resulting in the analysis of White (46%), Hispanic or Latino (37%), Asian (8%), and Black or African American (14%) students. Native American and Alaskan Native students represented a smaller portion of the sample at 1.3%.

¹ It is important to note that these proportions represent exclusive categories, while the analyses were conducted using non-exclusive categories. For instance, gender-based analyses compared female students to all other categories and male students to all other categories.

Figure 2

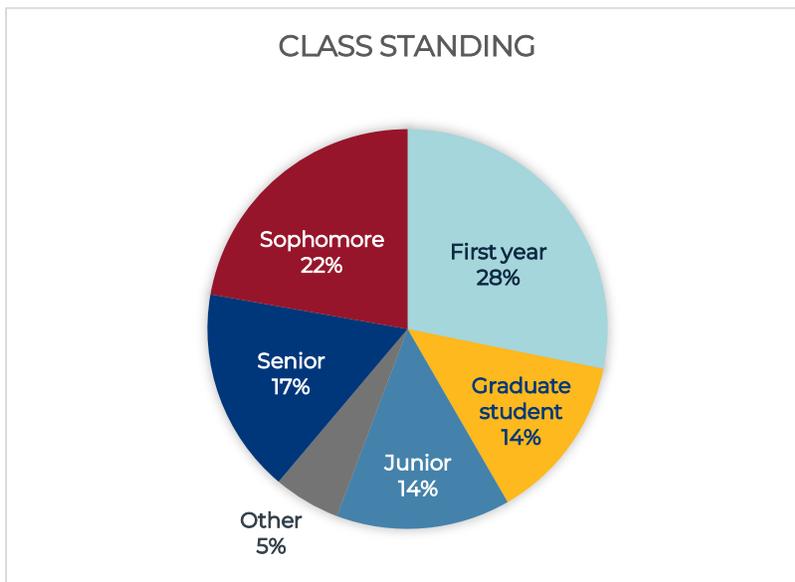
Proportion of Students by Race/Ethnicity in the Sample (Exclusive Categories)



Class Standing: The sample included 28% first-year students, 22% sophomores, 14% juniors, 17% seniors, 14% graduate students, and 5% who identified as other types of students (see Figure 3).

Figure 3

Proportion of Students by Class Standing in the Sample



Age: The average age of the students was 25.6 years old ($SD = 10.4$), with 67% being 24 years old or younger and 33% over 24 years old.

Enrollment Status: Seventy-nine percent of students were enrolled full-time, while 21% were part-time students.

Institution Type: Sixty-six percent of the students attended 4-year institutions, while 34% were enrolled at 2-year institutions.

Minority-Serving Institutions: Sixty-six percent of the sample attended MSIs and 34% attended other institution types.

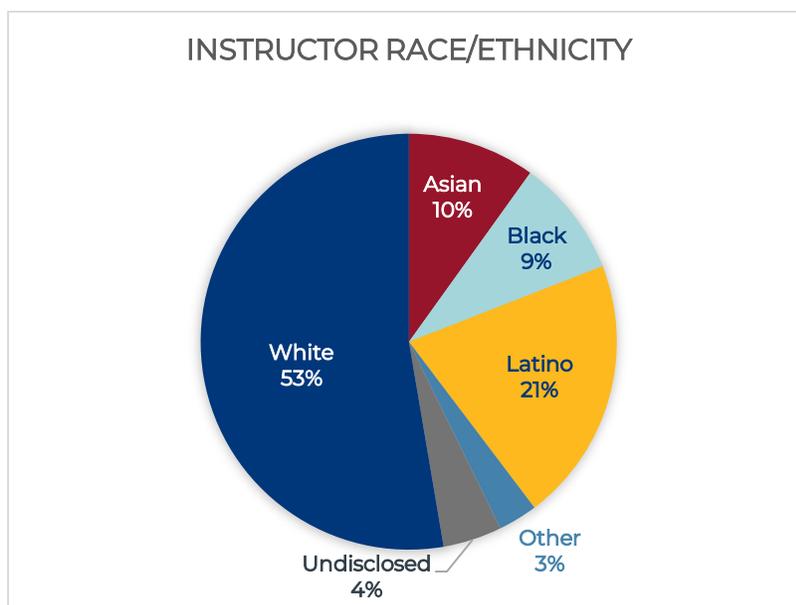
Instructor Demographics

Gender: Thirty-one percent of the instructors in the sample identified as men, 65% as women, and 4% did not disclose their gender.

Race and Ethnicity: Fifty-three percent of the instructors identified as White only, 21% as Hispanic or Latino only, 10% as Asian only, 9% as Black or African American only, 3% as another race or ethnicity, and 4% did not disclose this information (see Figure 4).

Figure 4

Proportion of Instructors by Race/Ethnicity in the Sample (Exclusive Categories)



Tenure Status: Forty-nine percent of the instructors indicated they were on a tenure track, while 51% were non-tenure track.

Years of Experience: Sixty-four percent of the instructors reported having less than 15 years of experience, while 36% reported having 15 years of experience or more.

Discipline: Thirty-six percent of the instructors were from traditional STEM disciplines, while 64% were from other disciplines.

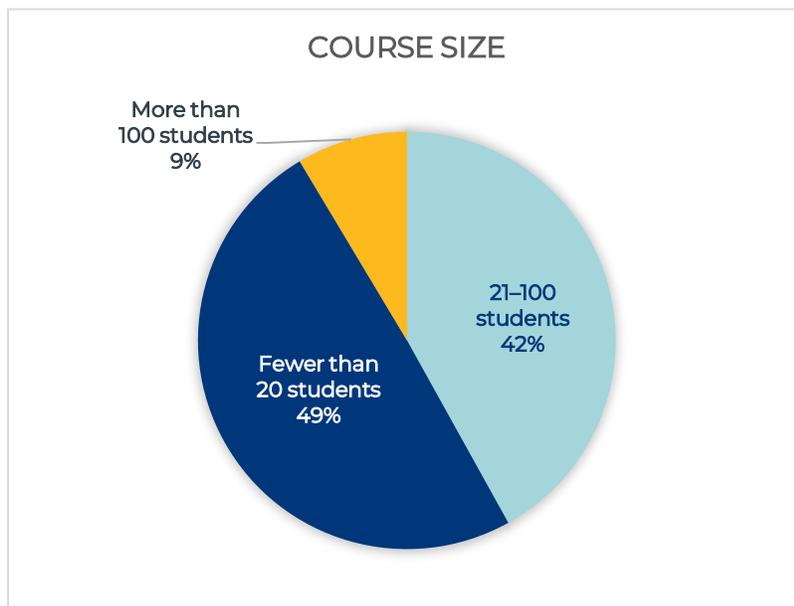
Course Characteristics

Course Format: The majority of students, 58%, attended face-to-face courses, while 42% participated in online or hybrid courses.

Course Size: Forty-nine percent of the students were in classes with fewer than 20 students, 42% attended courses with 21–100 students, and 9% were in classes with more than 100 students (see Figure 5).

Figure 5

Proportion of Students by Course Size in the Sample



Analytic Approach

Meaning Extraction Method. MEM was employed to analyze the open-ended responses. MEM is a mixed-methods approach that combines quantitative and qualitative analyses using dimension-reduction techniques like factor analysis to identify semantic patterns suggesting underlying themes. The initial steps in the process involved excluding commonly used words (e.g., do, the, he, they, about) and comments with fewer than seven words, since these do not have enough content to provide meaningful information. This was followed by extracting frequent content words within the data using the Meaning Extraction Helper (MEH) software (Boyd, 2018). The MEH software then generated datasets on the occurrence of these extracted content words for each comment within the analytic sample. This software also simplifies the words in the data through a process called lemmatization by reducing them to their base or root (e.g., “running,” “ran,” and “runs” would all be reduced to “run”) to ensure the accuracy of the text analysis. Following this, a Principal Component Analysis (PCA) was performed on the MEH output dataset, revealing 20 factors that cumulatively explained 26% of the variance.

Theme scores, also referred to as Weighted Factor Scores (WFS), were calculated for each comment within these factors based on the factor loadings of each word and the word frequency within individual comments using the MEH output. This process identified the comments that included patterns corresponding to their respective themes. The 10 comments within each factor with the highest theme scores were then selected for qualitative analysis.

The qualitative analysis involved open coding (Strauss & Corbin, 1990) of the top comments per factor with the highest theme scores, which were examined to identify recurring patterns and distinctive themes within each word cluster. This process considered how words were intermixed within comments, capturing the complexity and depth of students' feedback about their instructors. To reduce the potential of coder bias throughout the thematic analysis, intercoder reliability was established through the independent coding of the extracted comments by two researchers, with any discrepancies resolved through discussion and consensus. The content of the extracted factors was examined meticulously to determine whether they represented distinct and informative themes justifying their retention or dropping.

Finally, the relevance of each theme within the analytic sample was roughly estimated by the calculation of frequency estimates. These estimates were computed based on the number of comments with theme scores exceeding one standard deviation above the mean and the proportion of comments matching each theme among those analyzed qualitatively. These frequency estimates represent the probable proportion of comments containing each theme, which can lead to a sum of over 100% as many comments include more than one theme depending on their length and content.

Themes Associated With Demographic Characteristics. Theme scores were used to explore the associations between themes and instructor, student, and course characteristics through linear regressions, controlling for course size, course format, student generational college status, student age, and instructors' discipline.

Characteristics and Themes Associated With Instructor Recommendation Scores. Binary variables were created for each theme based on theme scores, indicating the presence or absence of each theme in the comments. Linear regressions were then conducted to determine whether student characteristics, instructor characteristics, course characteristics, or themes could explain variations in instructor recommendation scores. These analyses controlled for course size, course format, student generational college status, student age, and instructors' discipline.

4. Results

Open-Ended Responses Length

On average, students provided responses consisting of 23.04 words, indicating a reasonable level of detail in their feedback about their instructors. The most common response length (mode) was 14 words, while the median length was 17 words, suggesting that an important number of responses were concise but contained meaningful information. This distribution highlights the varying degrees of elaboration in student feedback, with some students providing more extensive commentary than others.

Student Response Distribution and Instructor Ratings

The majority of students (89%) were classified as “Recommenders,” giving their instructors a rating of 4 or 5 on a 5-point Likert scale. In contrast, only 11% of the students were “Non-recommenders,” rating their instructors below 4. The overall average recommendation score was 4.55 ($SD = 0.91$), indicating mostly high levels of satisfaction with their instructors among the 1,388 responses analyzed. These findings highlight an overall positive perception of instructors within the sample, with most students expressing strong approval and willingness to recommend their instructors to peers.

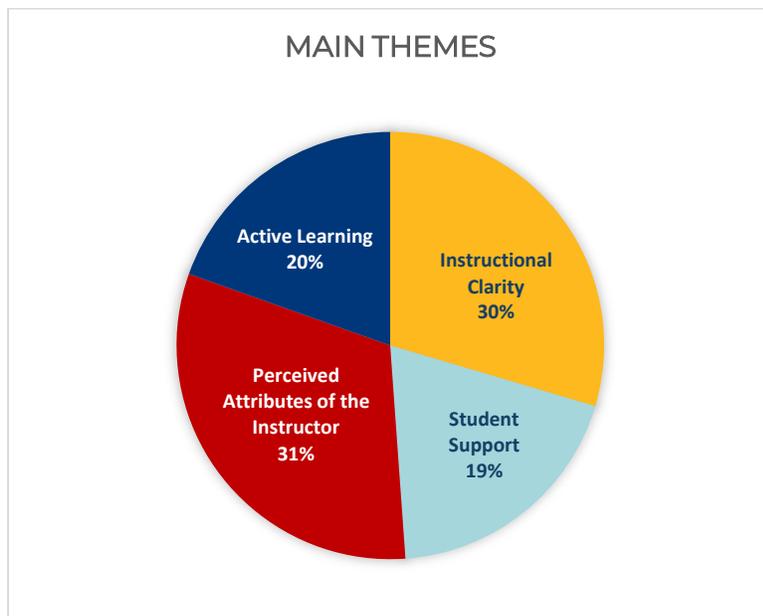
Identified Themes From Student Feedback About Instructors

As previously mentioned, the student feedback was analyzed using MEM. Through PCA, 20 factors (or word clusters) were identified. Thematic analysis through open coding led to the identification of 17 distinct themes and the discarding of three indistinct factors that did not exhibit clear thematic patterns.

This analysis considered the entire sample of comments, including those of Recommenders as well as those of Non-recommenders. Consequently, the themes were coded neutrally, meaning that if a theme refers to “Clear assignments,” for example, it can include comments of students praising the instructors’ clear assignments and comments of those criticizing the lack of clarity of the assignments. These themes were then categorized as sub-themes under four main themes based on their interrelations and commonalities, and their estimated frequencies (EF) were computed (Figure 6).

Figure 6

Estimated Frequency² of Student Comments Belonging to Each Main Theme



Main Theme 1 – Instructional Clarity (EF: 40% of comments)

This theme includes students' comments about their instructors' ability to communicate course content, expectations, and assignments in a clear and comprehensible manner.

Clear Assignment Expectations and Feedback (EF: 13% of comments):

Students highlighted the importance of instructors providing clear guidelines and expectations for assignments, valuing detailed instructions, and sufficient time for their completion. Feedback on assignments, when clear and constructive, was praised for helping students understand what is required and how to improve. On the other hand, some students criticized the lack of clarity in assignment instructions and feedback, indicating that this is an important area impacting their academic experience.

Word Cluster: complete, assignment, hard, time, work, feedback, future, give, week, motivate

Sample Comments:

- *“Always gives personal feedback on assignments and discussions. Clear assignment objectives and gives proper time to complete.”*

² The estimated frequencies in the graph have been adjusted to total 100% to better illustrate the proportion of comments in each main theme. This adjustment is necessary because individual comments can include multiple themes depending on length and content, resulting in unadjusted proportions exceeding 100%.

- *“There just wasn’t enough clear instructions and guidelines for assignments; it made it very stressful to do our large projects.”*

Simplified Complex Concepts (EF: 10% of comments):

Instructors who show an ability to break down difficult concepts into easily understandable terms are appreciated by students. This includes clear explanations that help elucidate challenging course content, making it more accessible to students.

Word Cluster: understand, easy, explain, concept, material, sure, teach, follow, difficult

Sample Comments:

- *“The lecture professor was great at teaching and making difficult concepts easier to understand.”*
- *“Very nice and explains things very well. Breaks down difficult concepts into something easier.”*

Clear Course Expectations and Instructions (EF: 9% of comments):

Students emphasized the importance of instructors who clearly articulate course expectations and provide effective instructions. Clarity in what is expected from students and how the course will be conducted is highly valued. This theme also includes students who criticized their instructors for being unclear or inconsistent about course expectations, highlighting the importance of this factor in their course experience.

Word Cluster: clear, instruction, pass, opportunity, expectation, show, extreme

Sample Comments:

- *“Gives clear instructions and expectations, cares about students and their learning.”*
- *“Wonderful and clear instruction. Consistent throughout semester.”*

Exam Readiness and Clarity (EF: 6% of comments):

Students expressed interest in feeling prepared for exams, attributing it to the instructor’s effective exam preparation strategies and the clarity of the exams themselves.

Word Cluster: exam, review, quiz, video, lecture, study, test, extreme

Sample Comments:

- *“Professor [redacted] did great reviews for tests, she was able to help us organize info so that we could apply it in tests and quizzes.”*
- *“The professor did not lecture on information that was quizzed or tested on and then blamed students for not knowing information or not doing work outside of class.”*

Detailed Explanations (EF: 2% of comments):

Detailed and thorough explanations of course content by the instructor are highly valued. Students appreciate it when instructors go in-depth to clarify concepts, provide thorough examples, and ensure understanding.

Word Cluster: detail, appreciate, require

Sample Comments:

- *“Professor provided detailed PowerPoints and explained in lecture the material a different way so we could understand it more.”*
- *“She’s a good teacher and helps you explain in detail what you didn’t understand and makes sure you will understand it.”*

Main Theme 2 – Student Support (EF: 25% of comments)

This theme covers students’ comments about the resources and assistance their instructors provided to support their academic success and growth, as well as the perception that their instructors care about them.

Perception of Care (EF: 13% of comments):

This sub-theme highlights students’ perception and recognition of instructors caring about them, their academic success, and their well-being. Instructors who are perceived to show concern for their students’ academic and personal growth are valued.

Word Cluster: student, care, success, succeed, amaze

Sample Comments:

- *“Very friendly and cares about students’ well-being.”*
- *“He is great. He explains things well and cares for his students’ success.”*

Learning Resources and Guidance (EF: 8% of comments):

Students value instructors who provide additional learning resources and guidance, such as supplementary materials, extra help sessions, and other forms of academic support provided by the instructor.

Word Cluster: provide, resource, outside, support, college, struggle, fair, helpful

Sample Comments:

- *“The professor was thorough in lectures and provided resources and guidance if I was struggling to grasp a concept.”*
- *“She didn’t teach us and expected [us] to learn outside of class without teaching us first.”*

Extra Credit Opportunities (EF: 3% of comments):

Students appreciated the availability of extra credit opportunities, perceiving instructors who offer these as supportive and flexible, giving them chances for improvement. However, this theme also included comments from students who criticized the lack of extra credit opportunities, especially when the course content was considered challenging.

Word Cluster: extra, credit, opportunity, online, point

Sample Comments:

- *“Professor is willing to help students out with extra credit opportunities which is always great!”*
- *“My instructor is very understanding, cares about her students, and is willing to give extra credit opportunities to her students so that everyone can pass her class.”*

Responsive Email Communication (EF: 1% of comments):

Students appreciate instructors who are quick to respond to their emails, as they are seen as more available for communication when needed.

Word Cluster: respond, email, fair

Sample Comments:

- *“Ms. [redacted] was very detailed in her instructions and responded quickly when I sent an email with questions or concerns.”*
- *“He was fast to respond to emails. He also sent emails to keep students going, I thought that was nice. He was also on top of grading which is a bonus.”*

Main Theme 3 – Perceived Attributes of the Instructor (EF: 32% of comments)

This theme includes students’ comments about their instructors’ personal qualities and professional attributes that they perceive to influence their learning and satisfaction such as professionalism and kindness.

Instructor “Teaching Style” (EF: 11% of comments):

Students consider their instructor’s “teaching style” important but were unclear or inconsistent across responses on what a good teaching style entails. Some notions associated with this description in the comments were approachability, clarity, and strong knowledge of the course content. This theme also included comments from students who expressed dislike for their instructors’ teaching styles, often without specifying what aspects they found lacking.

Word Cluster: manner, effective, communicate, knowledge, approachable, passionate, knowledgeable, clear, teach, succeed, style, feedback

Sample Comments:

- *“[Redacted] was great. I appreciated her teaching style.”*
- *“How the class is run and how she teaches is not for everyone.”*

Encouraging and Welcoming Instructor (EF: 7% of comments):

Students appreciate instructors perceived as encouraging and welcoming, fostering a positive and supportive learning environment.

Word Cluster: allow, feedback, encourage, understandable, grade, provide, better, welcoming, listen

Sample Comments:

- *“Instructor is very welcoming to students and encourages different points of view.”*

- *“I felt as though Dr. [redacted] unfortunately was not very helpful and encouraging in class. It was often felt that she worded her tests to be confusing on purpose, and her office hours were more about her telling you that you were wrong and being harsh, rather than providing helpful feedback and encouragement.”*

“Best” Instructor (EF: 6% of comments):

Some students describe their instructor as the “best” without providing specific details. This high praise seems to indicate an overall positive impression of the instructor’s effectiveness and impact.

Word Cluster: school, personal, best, problem

Sample Comments:

- *“One of my best professors in college so far.”*
- *“The best professor in this nursing school.”*

Professional and Informative Instructor (EF: 4% of comments):

Students expressed appreciation for instructors who they perceived as professional, knowledgeable, informative, and experienced. This sub-theme reflects students’ appreciation for the instructor’s perceived professional qualities.

Word Cluster: informative, professional, subject, patient, experience

Sample Comments:

- *“She is kind and helpful, professional and clear.”*
- *“He is a very professional and brilliant instructor.”*

Kind Instructor (EF: 4% of comments):

Instructors who are perceived as kind, nice, and good people are particularly valued by their students. This sub-theme highlights the importance of perceived personal warmth and kindness in their interactions with students.

Word Cluster: person, style, better, online, teacher

Sample Comments:

- *“[Redacted] is a good person and good teacher.”*
- *“Ms. [redacted] is a very kind and understanding person.”*

Main Theme 4 – Active Learning (EF: 23% of comments)

This theme encompasses students’ comments about instructional methods that make them feel engaged and make the learning process more interactive and relevant.

Engaging Class Experience (EF: 11% of comments):

Students value an engaging and enjoyable class experience. They praised instructors who keep students interested and involved in the learning process.

Word Cluster: class, environment, learn, engage, fun, enjoy, comfortable

Sample Comments:

- *“Charismatic, makes the class engaged and enjoyable.”*
- *“With the Professor on Zoom all semester it was hard to engage in class and actively learn.”*

Openness to Questions (EF: 8% of comments):

Instructors who are open to questions and provide clear, thorough answers are highly regarded by students. Students appreciate instructors who make them feel comfortable seeking clarification. This theme also included comments from students who criticized instructors who made them uncomfortable asking questions or who provided unclear answers.

Word Cluster: question, answer, give

Sample Comments:

- *“Very engaging and willing to answer questions with understandable answers.”*
- *“She was never present in person; she was on zoom from the beginning of the semester to the end. I never felt connected with my instructor and comfortable enough to ask questions.”*

Real-World Application of Content (EF: 4% of comments):

The use of real-life experiences and practical examples to teach course content is appreciated by students. They expressed that this helps them see the relevance of what they are learning and how it applies outside the classroom.

Word Cluster: real, life, experience, prepare

Sample Comments:

- *“The professor was very engaging in lecture and would also use real-life events that correlate to the topic.”*
- *“Mrs. [redacted] always gives constructive feedback. Uses her real-world experience to help prepare her students for their transition into the workplace.”*

Identified Themes From Student Feedback Depending on Instructor Recommendation Rating

MEM analyses were also conducted separately for student feedback submitted by Recommenders ($N = 1,239$) and Non-recommenders ($N = 147$). It is important to consider that the themes extracted from Non-recommenders' feedback should be interpreted with caution due to the smaller sample size. The methodology used for these two supplemental analyses followed the same steps as for the analysis of the combined sample.

From the feedback of Recommenders, PCA extracted 17 factors, from which 15 distinct themes were identified, and two indistinct factors were dropped. These themes were categorized as sub-themes under two main themes (see Table 1). For the feedback from Non-recommenders, PCA also yielded 17 factors, from which 14 distinct themes were observed through thematic analysis, and three indistinct factors were discarded. The identified themes were categorized under three main themes (see Table 2). Estimated frequencies were computed for the themes in both sub-samples.

Table 1

Themes and Sub-Themes Extracted From the Recommenders' Sub-Sample

Themes Identified	EF
<i>Main Theme 1: Instructor Support and Engagement</i>	74%
Perception of Care	13%
Knowledgeable and Helpful Instructor	13%
Engaging and Welcoming Class	11%
"Great" Instructor	10%
Instructor Motivation for Student Engagement	9%
Openness to Questions	8%
Instructor Support for Improvement and Success	7%
Responsive Email Communication	3%
<i>Main Theme 2: Effective and Clear Instruction</i>	54%
Simplified Complex Concepts	13%
Enjoyable and Relevant Lectures	11%
Clear Course-Content Explanations	9%
Clear Course Expectations and Instructions	8%
Informative Instructor	5%
Real-World Application of Content	4%
Thorough and Detailed Instruction	4%

Note: Percentages not adjusted. Estimated frequencies represent the theme proportions within this sub-sample ($N = 147$).

Table 2

Themes and Sub-Themes Extracted From the Non-Recommendors' Sub-Sample

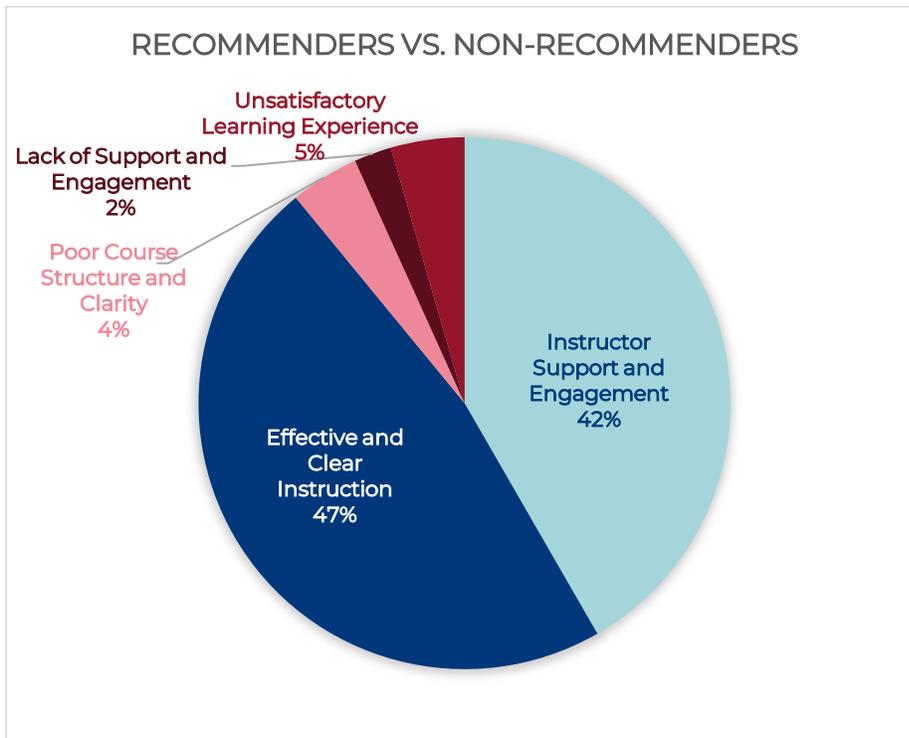
Themes Identified	EF
<i>Main Theme 1: Poor Course Structure and Clarity</i>	29%
Ambiguity in Assignments and Grading	6%
Unclear Assignments	6%
Complex Course Content and Unclear Explanations	5%
Course Load–Time Imbalance	5%
Excessive and Irrelevant Assignments	4%
Poor Concept Explanations	3%
<i>Main Theme 2: Lack of Support and Engagement</i>	12%
Inadequate Question Responses	5%
Lack of Support and Feedback	4%
Limited Connection With Instructor	3%
<i>Main Theme 3: Unsatisfactory Learning Experience</i>	39%
Perceived Lack of Learning	10%
Difficulties With Understanding Content and Instructor	10%
Perceived Lack of Learning Due to Online Environment	9%
Challenges In Learning	6%
Dislike of Specific Course Aspects	4%

Note: Percentages not adjusted. Estimated frequencies represent the theme proportions within this sub-sample (N = 1,239).

When comparing the proportion of main themes in the student feedback, categorizing the comments of the combined sample ($N = 1,388$) based on whether the comments were written by Recommenders or Non-recommenders, it was revealed that the majority of the comments (47%) centers on “Effective and Clear Instruction,” indicating a strong emphasis on the quality and clarity of teaching. Another significant portion (42%) refers to “Instructor Support and Engagement,” reflecting the value placed on instructors’ supportive behaviors and engagement with students. In contrast, the Non-recommenders’ feedback represents the minority of the comments, which revolve around three main themes: “Poor Course Structure and Clarity” (4%), “Lack of Support and Engagement” (2%), and “Unsatisfactory Learning Experience” (5%) (see Figure 7).

Figure 7

Distribution of Main Themes in Student Feedback Among Recommenders and Non-Recommenders



Comparing Themes: Combined Sample vs. Recommenders’ Sub-Sample

When comparing the themes identified in the combined sample with those in the Recommenders’ sub-sample, it was observed that many themes were overall equivalent between the two samples, such as “Simplified Complex Concepts” and “Clear Course Expectations and Instruction,” indicating that clear and effective instruction is universally valued.

However, the combined sample encompasses a broader range of criteria, including more subjective aspects of the student experience with their instructors, with a larger focus on support mechanisms and characteristics attributed to the instructors that students perceive to affect them positively, such as kindness, excellence, and professionalism.

On the other hand, the Recommenders’ sample themes seem to be more focused on instructor effectiveness and instructional quality. This suggests that students who are more likely to recommend their instructors tend to focus on specific aspects of instructional quality and the positive impact of the instructor’s engagement and support on their learning experience.

Comparing Themes: Combined Sample vs. Non-Recommenders’ Sub-Sample

Comparing the combined sample with the Non-recommenders’ sample reveals a contrast in focus and sentiment. While the themes from the combined sample are more instructor-centric, emphasizing qualities and practices of the instructor that enhance the learning experience, the themes extracted

from the Non-recommenders' sub-sample are more student-centric, focusing more on challenges and obstacles faced by the students during the course.

Although the themes extracted from the Non-recommenders' sub-sample are more negative in their sentiment, they are centered around the same course aspects that students expressed valuing in the themes extracted from the combined sample. For example, while the combined sample includes the theme "Simplified Complex Concepts," the Non-recommenders highlight "Complex Course Content and Unclear Explanations," pointing to a perceived lack of clarity and difficulty in understanding the course material. Similarly, the theme "Openness to Questions" from the combined sample contrasts with "Inadequate Question Responses" from the Non-recommenders, indicating dissatisfaction with the instructors' responsiveness and engagement. This contrast of themes around similar topics or instructional aspects is presented several times, as shown in Table 3. These opposing themes show that Non-recommenders' feedback is more critical and focuses on the absence of clarity, support, and connection with instructors, which are crucial for a satisfactory learning experience.

Table 3

Contrasting Sub-Themes Between the Combined Sample and the Non-Recommenders' Sub-Sample

Combined dataset	EF	Non-recommenders	EF
Simplified Complex Concepts	10%	Complex Course Content and Unclear Explanations	0.6%
Openness to Questions	8%	Inadequate Question Responses	0.6%
Engaging Class Experience	11%	Perceived Lack of Learning	1%
Clear Assignment Expectations and Feedback	13%	Unclear Assignments	0.6%
Clear Course Expectations and Instructions	9%	Ambiguity in Assignments and Grading	0.7%
Perception of Care	13%	Limited Connection With Instructor	0.3%

Note: The estimated frequencies in this table are based on the combined sample (N = 1,388).

Impact of Student Characteristics on Evaluations of Instructors

Gender: Female students scored significantly higher on the "Perceptions of Care" ($b = 0.29$, $SE = 0.11$, $p = .011$), "Best" Instructor ($b = 0.07$, $SE = 0.03$, $p = .037$), and "Openness to Questions" ($b = 0.18$, $SE = 0.08$, $p = .018$) sub-themes compared to other gender categories. On the other hand, male students scored significantly lower on the "Perceptions of Care" sub-theme ($b = -0.31$, $SE = 0.12$, $p = .008$) (see Appendix 1). These suggest that female students appreciate their instructors' care, teaching style, and openness to questions more frequently, whereas male students comment less frequently on whether their instructors are caring.

Race and Ethnicity: Black/African American students scored significantly lower on the “Clear Course Expectations and Instructions” ($b = -0.26, SE = 0.07, p < .001$) and the “Exam Readiness and Clarity” sub-themes ($b = -0.08, SE = 0.04, p = .032$) compared to students from other racial/ethnic groups. Additionally, Black/African American students described their instructors as “Encouraging and Welcoming” ($b = -0.14, SE = 0.07, p = .033$) less frequently than other groups. These results suggest that Black/African American students prioritize other aspects beyond instructional clarity and either perceive their instructors less frequently as encouraging and welcoming, or they place less value on these characteristics compared to other instructor attributes.

Hispanic/Latino students scored significantly higher on the “Learning Resources and Guidance” ($b = 0.18, SE = 0.05, p = .001$) and “Extra Credit Opportunities” sub-themes ($b = 0.09, SE = 0.05, p = .050$). They also described their instructors more frequently as “Encouraging and Welcoming” ($b = 0.12, SE = 0.05, p = .021$) compared to other groups. These results would imply that student support and interconnectedness with their instructors is particularly relevant for Hispanic/Latino students.

On the other hand, Asian students scored significantly lower on the “Extra Credit Opportunities” ($b = -0.12, SE = 0.04, p = .002$) and the “Responsive Email Communication” sub-themes ($b = -0.18, SE = 0.06, p = .003$). Asian students also described their instructors significantly less frequently as the “Best Instructor” ($b = -0.14, SE = 0.03, p < .001$). These results suggest that Asian students would prioritize other aspects beyond their instructors’ support and would be more moderate in their evaluations of instructors.

Lastly, White students scored significantly lower on the “Learning Resources and Guidance” sub-theme ($b = -0.10, SE = 0.05, p = .037$), implying that this theme could be less relevant for these students. These findings reveal that many of the differences in themes are based on their racial and ethnic backgrounds (see Appendix 2).

Age: Students over 24 years old mentioned their instructors’ “Teaching Style” ($b = 0.24, SE = 0.07, p < .001$) and described them as “Professional and Informative” ($b = 0.12, SE = 0.04, p = .002$) more frequently than younger students. However, they mentioned the “Engaging Class Experience” significantly less ($b = -0.26, SE = 0.12, p = .024$) than their younger counterparts (see Appendix 3). These findings suggest that while older students value the teaching style and professionalism of their instructors, they might not value class engagement as much as younger students.

College Generational Status: The analysis comparing first-generation college students to others showed that first-generation students mentioned “Learning Resources and Guidance” with significantly higher frequency ($b = 0.12, SE = 0.05, p = .007$) (see Appendix 3). This could imply that first-generation students place a higher emphasis on the availability and quality of learning resources and guidance provided by their instructors.

Enrollment Status: When comparing part-time students to full-time students, no significant differences were found in any of the measured themes, indicating that part-time and full-time students have similar perceptions of their instructors across the identified dimensions of instructional clarity, student support, perceived instructor’s kindness and excellence, and active learning (see Appendix 3).

Institution Type: Students from 4-year institutions scored significantly lower on the “Simplified Complex Concepts” sub-theme ($b = -0.24$, $SE = 0.12$, $p = .043$). However, they scored significantly higher in the “Extra Credit Opportunities” sub-theme ($b = 0.14$, $SE = 0.04$, $p < .001$). Additionally, students from 4-year institutions described their instructors as “Kind” ($b = -0.18$, $SE = 0.05$, $p < .001$) or as the “Best” ($b = -0.07$, $SE = 0.04$, $p = .047$) significantly less frequently compared to students from 2-year institutions (see Appendix 4). These findings imply that students from 4-year institutions particularly value having opportunities for extra credit and that they might perceive less kindness and excellence in their instructors, or that these personal attributes are not as relevant for these students compared to those at 2-year institutions.

Students From Minority-Serving Institutions (MSIs): Students from MSIs commented about “Clear Assignment Expectations and Feedback” ($b = -0.23$, $SE = 0.08$, $p = .002$) and “Openness to Questions” ($b = -0.19$, $SE = 0.09$, $p = .031$) significantly less compared to students from other institution types. However, they commented on “Perceptions of Care” significantly more ($b = 0.22$, $SE = 0.11$, $p = .049$), suggesting a greater appreciation for the perceived care by their instructors than students from other types of institutions. Additionally, students from MSIs mentioned “Learning Resources and Guidance” ($b = 0.12$, $SE = 0.05$, $p = .007$) more frequently and described their instructors more often as “Professional and Informative” ($b = 0.07$, $SE = 0.03$, $p = .020$) (see Appendix 4). These results imply that while students from MSIs might not prioritize clarity in assignment expectations and openness to questions, they highly value instructors who are supportive and professional.

Class Standing: There were significant differences observed between first-year students and students of other class standings (see Appendix 5).

Sophomore students commented on “Learning Resources and Guidance” significantly less ($b = -0.13$, $SE = 0.06$, $p = .039$) than first-year students. This suggests that sophomore students place less value on or have less access to learning resources and guidance compared to their first-year counterparts.

In the case of junior students, they described their instructors as “Kind” ($b = -0.13$, $SE = 0.07$, $p = .047$) less frequently than their first-year counterparts. This implies that junior students may feel that their instructors are less kind and welcoming compared to first-year students or they place less value on these instructor aspects.

Senior students showed significant differences in several themes compared to first-year students. They commented more frequently on “Perceptions of Care” ($b = 0.66$, $SE = 0.22$, $p = .002$). However, they described their instructors as “Kind” ($b = -0.23$, $SE = 0.06$, $p < .001$) less frequently than first-year students. These results indicate that senior students describe their instructors more frequently as caring instead of kind compared to first-year students.

Graduate students commented more frequently about “Clear Course Expectations and Instructions” ($b = 0.44$, $SE = 0.13$, $p < .001$) and about their instructors’ “Teaching Style” ($b = 0.24$, $SE = 0.11$, $p = .030$) compared to first-year students. Graduate students also had higher scores for “Perceptions of Care” ($b = 0.50$, $SE = 0.21$, $p = .018$). However, they described their instructors as a “Kind Instructor” significantly less ($b = -0.19$, $SE = 0.06$, $p = .001$) and also commented less on “Engaging Class Experience” ($b = -0.66$,

$SE = 0.16, p < .001$) compared to first-year students. These findings suggest that graduate students appreciate clear expectations and their instructors' teaching style more than first-year students but do not value their instructors' kindness and class engagement as much.

Students classified as "Other" described their instructors as "Kind" ($b = -0.25, SE = 0.07, p = .001$) less frequently than first-year students. These students did not show significant differences in other themes, but they seem not to value kindness in their instructors as much as first-year students.

Impact of Instructor Characteristics on Evaluations of Instructors

Gender: The regression analyses of theme scores by instructor gender revealed a significant result for the "Best" Instructor sub-theme. Female instructors tended to be described as the "Best" Instructor ($b = 0.08, SE = 0.04, p = .033$) more frequently, compared to instructors of other or undisclosed genders (see Appendix 6).

Instructor Race and Ethnicity: Instructors who identified as White had significantly higher theme scores on the "Engaging Class Experience" sub-theme ($b = 0.35, SE = 0.11, p = .001$) compared to instructors of other races/ethnicities (see Appendix 6). This could suggest that students taught by White instructors tend to describe classes as more engaging compared to those taught by instructors from other racial/ethnic backgrounds.

Tenure Status: The regression analyses of theme scores by tenure status (on tenure track vs. non-tenure track) revealed significant results in two sub-themes. Instructors on tenure-track had significantly higher scores for "Detailed Explanations" ($b = 0.03, SE = 0.01, p = .021$) and "Extra Credit Opportunities" ($b = 0.10, SE = 0.04, p = .019$) compared to non-tenure-track instructors (see Appendix 7). These findings suggest that tenure-track instructors are described more frequently as providing detailed explanations and offering opportunities for extra credit.

Discipline: STEM instructors had significantly higher theme scores on the "Simplified Complex Concepts" ($b = 0.71, SE = 0.13, p < .001$) and "Extra Credit Opportunities" ($b = 0.12, SE = 0.05, p = .018$) sub-themes compared to instructors from other disciplines (see Appendix 7). This could indicate that students taught by STEM instructors value the simplification of complex concepts and opportunities for extra credit more than students taught by instructors from other disciplines.

Years of Experience: Instructors with more than 15 years of experience had significantly higher theme scores for "Engaging Class Experience" ($b = 0.29, SE = 0.11, p = .010$), but significantly lower scores for "Responsive Email Communication" ($b = -30.25, SE = 9.03, p = .001$) (see Appendix 7). These findings suggest that while experienced instructors are perceived to be better at engaging students in class, they may be perceived as less responsive in email communication.

Impact of Course Characteristics on Evaluations of Instructors

Course Format: Students in face-to-face courses scored significantly lower on the "Clear Assignment Expectations and Feedback" ($b = -0.31, SE = 0.07, p < .001$) and "Learning Resources and Guidance" ($b = -0.17, SE = 0.06, p = .003$) sub-themes compared to students in online/hybrid courses. However, students in face-to-face courses described their instructors more frequently as the "Best" ($b = 0.08, SE = 0.03, p$

= .018) compared to students in online/hybrid formats (see Appendix 8). These findings suggest that while students in face-to-face courses may not value clarity in assignments and learning resources as much as students in online/hybrid courses, they are more likely to perceive their instructors as the best.

Course Size: The regression analyses of theme scores by course size compared students in courses with 21–100 students to those in courses with fewer than 20 students and those in courses with more than 100 students. Students in courses with 21–100 students scored significantly higher for the “Exam Readiness and Clarity” ($b = 0.33, SE = 0.12, p = .004$) and the “Perceptions of Care” ($b = 0.75, SE = 0.29, p = .009$) sub-themes compared to their counterparts in courses with more than 100 students. However, they described their instructors less frequently as “Professional and Informative” ($b = -0.07, SE = 0.03, p = .005$), reflected in significantly lower scores in this theme compared to students in courses with more than 100 students (see Appendix 8). This suggests that students in medium-sized courses perceived their instructors as better at preparing students for exams and more caring, while students in larger courses tend to perceive their instructors more frequently as professional and informative.

Qualitative Thematic Analysis of Instructor Evaluations of Native American Students

Due to the small number of Native American and Native Alaskan students in the sample, a purely qualitative thematic analysis was employed to better understand their perceptions of their instructors. This decision was made to ensure that the unique perspectives of these students were adequately represented and analyzed in depth, without being overshadowed by the themes extracted from the larger dataset. The sub-sample of Native American and Native Alaskan students consisted of 22 individuals, with a diverse representation in terms of gender, age, and enrollment status (see Table 4). The average instructor recommendation score of this sub-sample was 4.55 ($SD = 0.96$), indicating an overall positive perception of their instructors, with only two of these students classified as Non-recommenders.

Table 4

Demographic and Enrollment Characteristics of the Native American/Native Alaskan Students’ Sub-Sample

Category	Description
Total Native Students	22
Gender Distribution	13 Women, 5 Men, 3 Other, 1 Undisclosed
Average Age	26.3 years
Students Over 24 Years Old	9
MSIs	14
Institution Type	9 (2-year), 13 (4-year)
Enrollment Status	4 Part-Time, 18 Full-Time

Category	Description
First-Generation College Students	12
Class Standing	6 First-Year, 7 Sophomores, 2 Juniors, 3 Seniors, 2 Graduate Students, 2 Others
Class Format	13 Online/Hybrid, 9 Face-to-Face

Themes Identified in Native Students' Instructor Feedback:

1. **Supportive and Approachable Instructor:** The most salient theme identified among these students was the supportiveness and approachability of their instructors. Most students on this sub-sample referred to the significant impact of having instructors who were dedicated to their success and growth. These students appreciated instructors who provided assistance, actively guided them through their academic journey, or offered motivation and encouragement.
2. **Teaching Clarity:** Another significant theme was the clarity with which instructors explained complex concepts. Students in this sub-sample praised instructors who could make difficult material accessible and understandable, implying the importance of clear and effective communication for these students.
3. **Engaging and Relevant Lessons:** Engagement and relevance in lessons were also mentioned as important factors. These students seemed to favor instructors who incorporated relevant activities and meaningful discussions into their lessons, making the learning environment more interactive and stimulating.
4. **Professionalism and Expertise:** Professionalism and expertise were instructor qualities appreciated by Native students. Instructors who demonstrated deep subject knowledge and ethical conduct seem to be highly respected.
5. **Perceived Attributes of the Instructor:** Native students seem to appreciate the personal attributes of instructors that they perceive positively impact them. Characteristics such as kindness, patience, and intelligence were noted as positively influencing their learning experience.

In summary, this thematic analysis revealed that Native students highly value interconnectedness with their instructors, reflected in supportiveness and approachability. Additionally, they appreciate instructors who are clear, engaging, professional, and perceived to have positive characteristics, such as kindness, patience, and intelligence. These attributes are key to creating a positive and effective learning environment that meets the particular educational needs and preferences of Native American and Native Alaskan students in the sample.

Differences in Instructor Recommendation Scores Based on Student, Instructor, and Course Characteristics

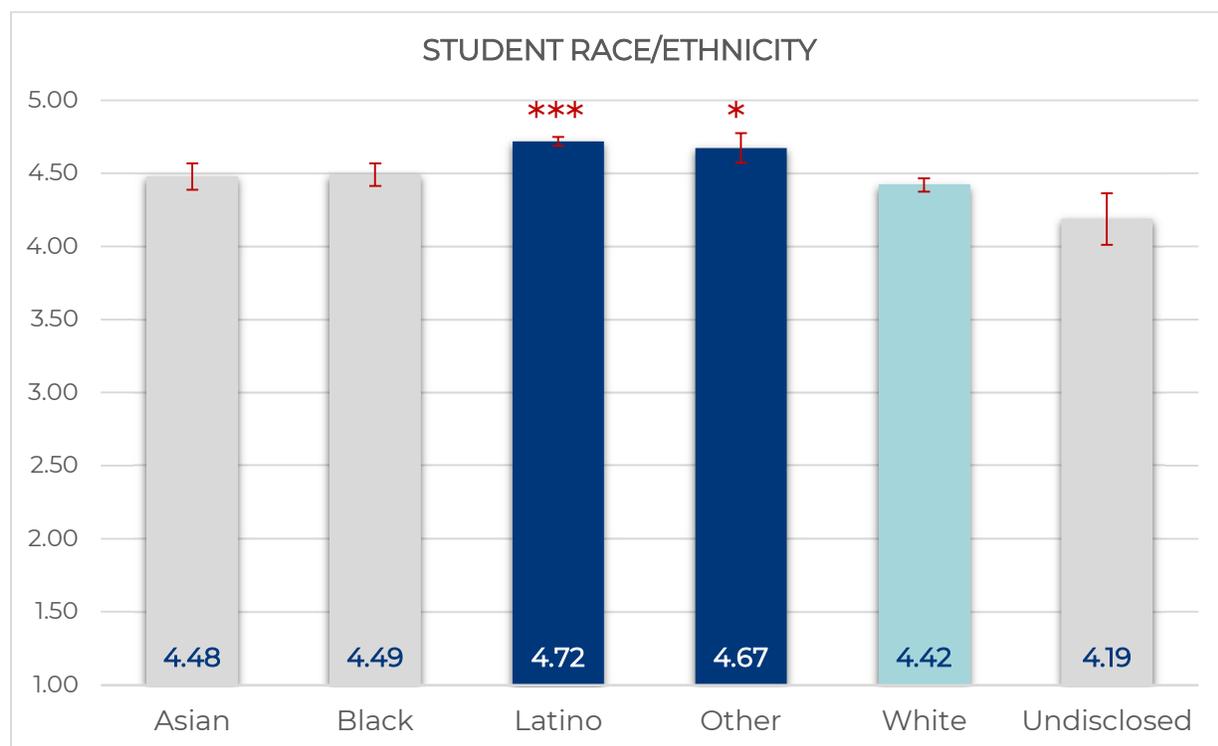
The analysis of instructor recommendation scores revealed important differences based on student, instructor, and course characteristics:

Student Characteristics

Race and Ethnicity: The regression analysis examined the likelihood of students recommending their instructors based on race/ethnicity, with White students as the reference group. The results indicated that Hispanic students ($b = 0.30$, $SE = 0.06$, $p < .001$, 95% CI [0.19, 0.41]) and students identifying as other races/ethnicities ($b = 0.25$, $SE = 0.11$, $p = .023$, 95% CI [0.03, 0.47]) were significantly more likely to recommend their instructors compared to White students. There were no statistically significant differences in recommendation likelihood for Asian students ($b = 0.06$, $SE = 0.10$, $p = .568$, 95% CI [-0.14, 0.25]), Black students ($b = 0.07$, $SE = 0.09$, $p = .436$, 95% CI [-0.11, 0.25]), or students of undisclosed race ($b = -0.23$, $SE = 0.18$, $p = .207$, 95% CI [-0.59, 0.13]) compared to White students (see Figure 8).

Figure 8

Differences in Instructor Recommendation Scores Based on Student Race/Ethnicity



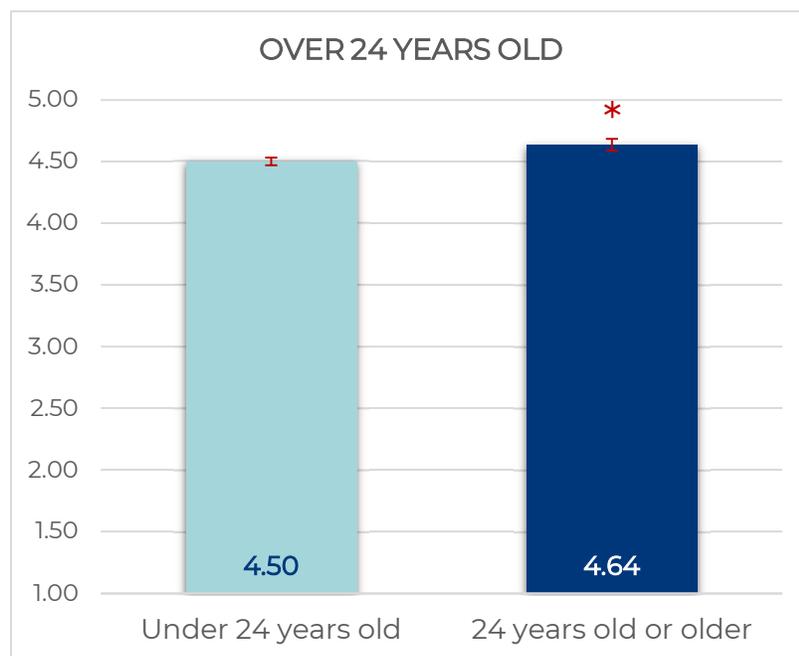
Gender: The regression analysis of the instructor recommendation ratings by student gender, with male students as the reference group, revealed that students identifying as other genders ($b = 0.20$, $SE = 0.22$, $p = .353$, 95% CI [-0.23, 0.64]) and female ($b = -0.02$, $SE = 0.05$, $p = .738$, 95% CI [-0.11, 0.08]) did not

significantly differ from male students in their ratings. However, students who did not disclose their gender were found to rate their instructor significantly lower ($b = -0.49$, $SE = 0.26$, $p = .057$, 95% $CI [-0.99, 0.02]$) compared to male students, though this result is marginally significant.

Age: The analysis of the recommendation ratings by student age revealed that students over 24 years old ($b = 0.134$, $SE = 0.062$, $p = .030$, 95% $CI [0.013, 0.256]$) rated instructors significantly higher compared to students aged 24 years or younger (see Figure 9).

Figure 9

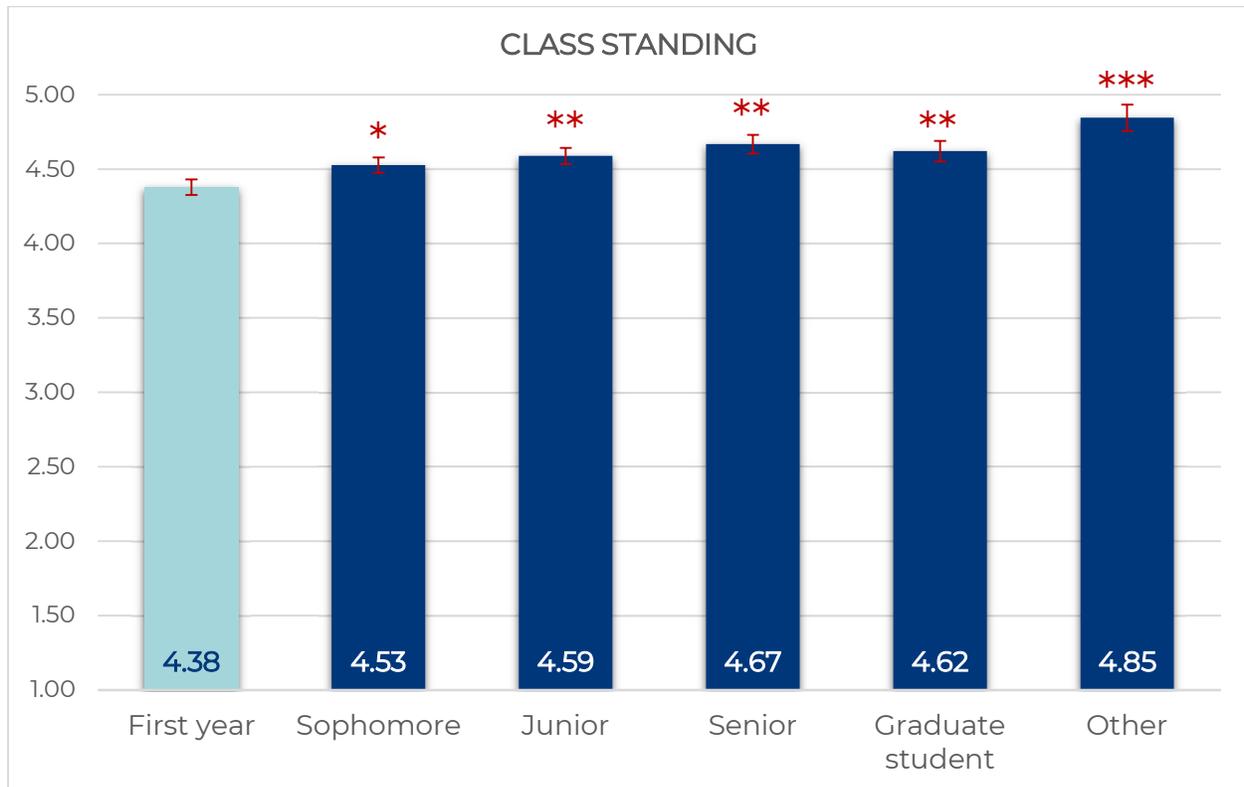
Differences in Instructor Recommendation Scores Based on Student Age



Class Standing: The regression analysis of instructor recommendation scores, with first-year students as the reference group, revealed significant differences across various class standings. Graduate students rated instructors significantly higher ($b = 0.24$, $SE = 0.09$, $p = .008$, 95% $CI [0.06, 0.42]$), as did juniors ($b = 0.21$, $SE = 0.08$, $p = .006$, 95% $CI [0.06, 0.36]$), seniors ($b = 0.29$, $SE = 0.09$, $p = .001$, 95% $CI [0.12, 0.46]$), and sophomores ($b = 0.15$, $SE = 0.07$, $p = .038$, 95% $CI [0.01, 0.29]$) compared to first-year students. Additionally, students who did not disclose their class standing also rated instructors significantly higher ($b = 0.47$, $SE = 0.11$, $p < .001$, 95% $CI [0.25, 0.68]$) (see Figure 10).

Figure 10

Differences in Instructor Recommendation Scores Based on Class Standing



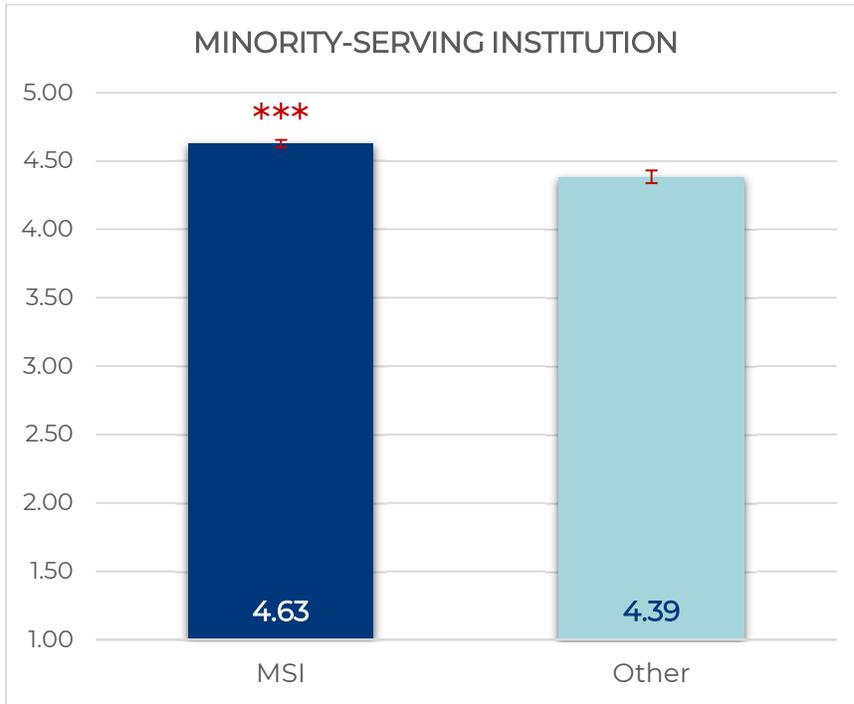
College Generational Status: The analysis of instructor recommendation scores based on student college generational status revealed that first-generation college students ($b = 0.04$, $SE = 0.05$, $p = .473$, 95% $CI [-0.06, 0.13]$) did not significantly differ in their ratings of instructors compared to students who are not first-generation.

Enrollment Status: The regression analysis of instructor recommendation scores showed that part-time students ($b = 0.05$, $SE = 0.06$, $p = .434$, 95% $CI [-0.07, 0.17]$) did not significantly differ in their ratings of instructors compared to full-time students.

Students in Minority-Serving Institutions (MSIs): The regression analysis of instructor recommendation scores showed that students from MSIs ($b = 0.24$, $SE = 0.06$, $p < .001$, 95% $CI [0.13, 0.35]$) rated instructors significantly higher compared to students from other types of institutions (not MSIs) (see Figure 11).

Figure 11

Differences in Instructor Recommendation Scores Between MSI Students and Others



Instructor Characteristics

Gender: The analysis of instructor recommendation scores by instructor gender, with male instructors as the reference group, revealed that instructors who did not disclose their gender ($b = -0.08$, $SE = 0.12$, $p = .528$, $95\% CI [-0.32, 0.16]$) did not significantly differ from male instructors in their ratings. Similarly, female instructors ($b = -0.11$, $SE = 0.06$, $p = .052$, $95\% CI [-0.22, -0.001]$) also did not show a significant difference in recommendation ratings compared to male instructors, though this result is marginally significant.

Race and Ethnicity: The analysis of recommendation ratings by instructor race and ethnicity³ revealed that instructors of other races did not significantly differ in their ratings compared to instructors who identified as White ($b = 0.05$, $SE = 0.05$, $p = .378$, $95\% CI [-0.06, 0.15]$).

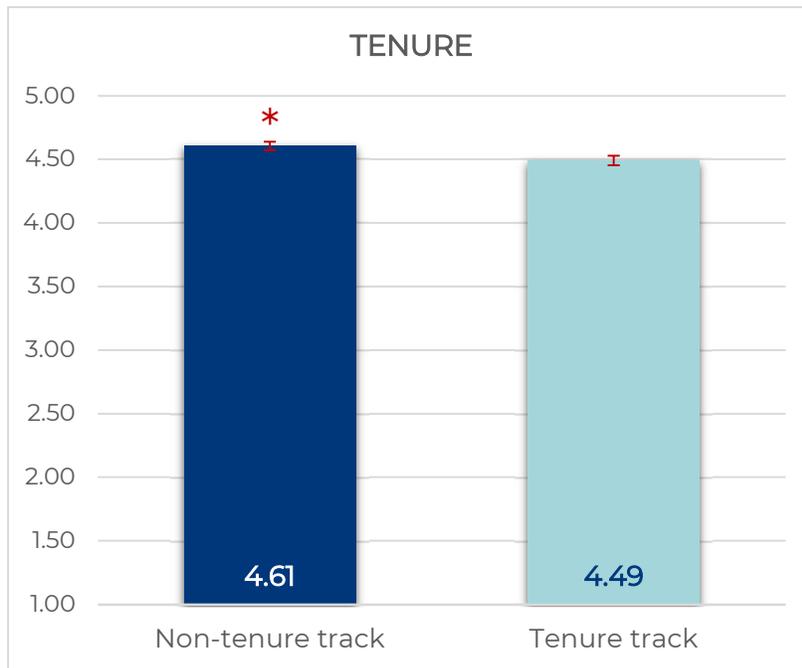
Discipline: The regression analysis of instructor recommendation ratings by instructor discipline showed that instructors in traditional STEM fields did not significantly differ in their ratings compared to instructors from other disciplines ($b = -0.02$, $SE = 0.06$, $p = .753$, $95\% CI [-0.13, 0.10]$).

³ Due to the low proportion of instructors from various racial groups, they were categorized as either “White” or “Other race/ethnicity” for the purposes of the regression analysis.

Tenure Status: The analysis of recommendation ratings by tenure status revealed that tenure-track instructors received significantly lower ratings than non-tenure-track instructors ($b = -0.11$, $SE = 0.05$, $p = .036$, $95\% CI [-0.22, -0.01]$) (see Figure 12).

Figure 12

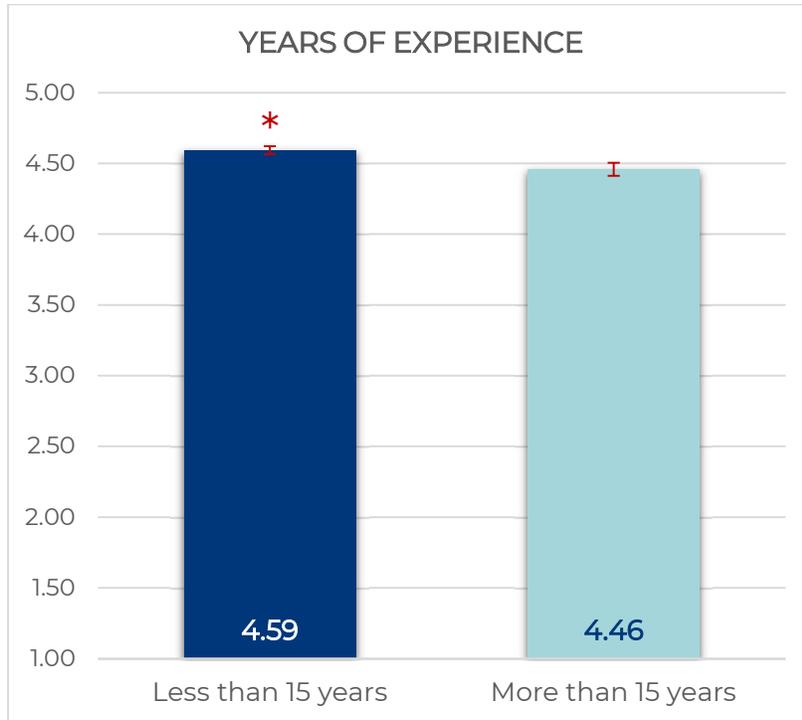
Differences in Instructor Recommendation Scores Based on Instructor Tenure Status



Years of Experience: The regression analysis of instructor recommendation ratings by instructor years of experience revealed that instructors with more than 15 years of experience received significantly lower ratings compared to instructors having less than 15 years of experience ($b = -0.13$, $SE = 0.06$, $p = .015$, $95\% CI [-0.24, -0.03]$) (see Figure 13).

Figure 13

Differences in Instructor Recommendation Scores Based on Instructor Years of Experience

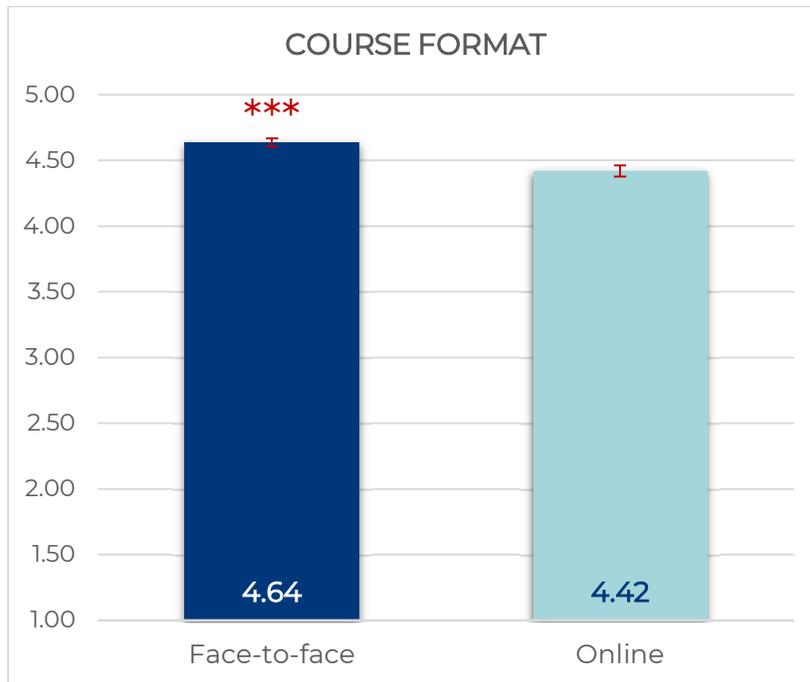


Course Characteristics

Course Format: The regression analysis of instructor recommendation ratings by course format revealed that students in face-to-face courses gave significantly higher ratings ($b = 0.22$, $SE = 0.06$, $p < .001$, 95% CI [0.11, 0.33]) compared to students in online/hybrid courses to their instructors (see Figure 14).

Figure 14

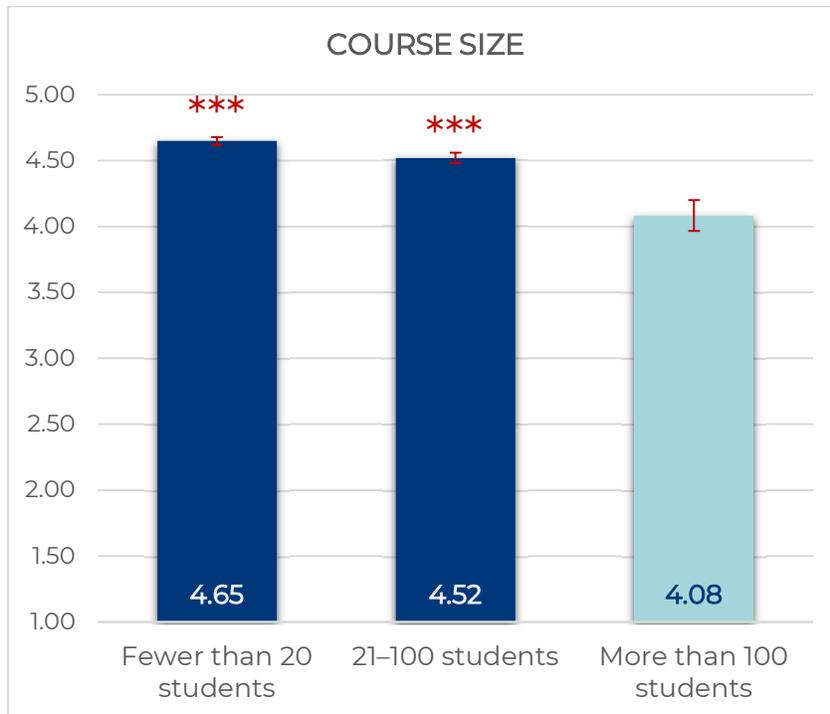
Differences in Instructor Recommendation Scores Based on Course Format



Course Size: The analysis of instructor recommendation ratings by course size showed that students in courses with 21–100 students ($b = 0.44$, $SE = 0.12$, $p < .001$, 95% CI [0.19, 0.68]) and courses with fewer than 20 students ($b = 0.57$, $SE = 0.13$, $p < .001$, 95% CI [0.32, 0.81]) gave significantly higher ratings to their instructors compared to students in courses with more than 100 students (see Figure 15).

Figure 15

Differences in Instructor Recommendation Scores Based on Course Size



Differences in Instructor Recommendation Scores Based on Commented Themes

The impact of students commenting on specific themes when evaluating their instructors revealed significant effects on the instructor recommendation score, depending on the theme (see Appendix 9). Due to the neutral nature of the themes, where students might both praise and criticize their instructors within the same theme, the direction of the impact cannot be accurately interpreted. However, we can infer that the significant results highlight themes that most affect students' perceptions of their instructors.

Students who commented on the “Clear Assignment Expectations and Feedback” sub-theme had significantly different results on their likelihood of recommending their instructor ($b = -0.22$, $SE = 0.08$, $p = .007$) compared to students who did not comment about this. Similarly, comments on “Simplified Complex Concepts” also significantly influenced recommendation scores ($b = 0.16$, $SE = 0.06$, $p = .007$). These results suggest that clarity in assignments and the ability to simplify concepts are important factors affecting students' perceptions of their instructors.

Regarding student support, commenting on this main theme significantly impacted instructor recommendation scores ($b = 0.18$, $SE = 0.05$, $p < .001$). Specifically, mentions of “Perceptions of Care” ($b = 0.26$, $SE = 0.06$, $p < .001$) and “Learning Resources and Guidance” ($b = 0.16$, $SE = 0.07$, $p = .022$) were particularly influential. These findings could indicate that students’ perceptions of their overall instructor support, particularly of how much their instructors care and the guidance provided are major factors in their evaluations.

Regarding the perceived attributes of the instructor, commenting on this main theme was also significantly impactful ($b = 0.17$, $SE = 0.05$, $p < .001$). Within this main theme, comments on “Instructor ‘Teaching Style’” ($b = 0.16$, $SE = 0.06$, $p = .009$), the instructor being the “Best” ($b = 0.22$, $SE = 0.07$, $p = .001$), and being “Professional and Informative” ($b = 0.17$, $SE = 0.06$, $p = .004$) significantly impacted the recommendation scores. This would indicate that students’ perception of their instructors’ personal and professional characteristics, specifically how students perceive their instructor’s teaching style, professionalism, and overall excellence, are key elements influencing their recommendation scores.

Overall, while the direction of the impact on instructor recommendation is difficult to interpret due to the themes’ neutrality, these significant results identify the aspects that most affect students’ perceptions and their likelihood of recommending their instructors to their peers.

5. Discussion

The results of this study provide a comprehensive understanding of the various factors influencing student perceptions of instructors, contributing significantly to the field of higher education by highlighting the multidimensional nature of these perceptions. By using a novel mixed-method approach, this study captured important insights into the interactions between student evaluations, and instructor, student, and course characteristics.

The findings indicate that student evaluations are influenced by perceived support, clarity in instruction, active learning techniques, and their perceived personal approach to student interactions. These aspects were mentioned across various student demographics, with differences in emphasis depending on race/ethnicity and class standing, and were impacted by instructor characteristics, mainly tenure status and years of experience as well as by course characteristics. Importantly, the study revealed that Latino students, older students, those from MSIs, and those in later academic stages tended to rate their instructors more favorably. The more favorable recommendation scores given by students who identified as Hispanic/Latino could be explained by cultural differences in response styles, particularly on questions that evoke social desirability (Davis et al., 2022; Hopwood et al., 2009; Marín et al., 1992).

These results highlight the importance for higher education institutions to prioritize and support instructional practices that significantly enhance student satisfaction, such as instructional clarity and support of students, among others previously mentioned, that accommodate the needs of students from diverse backgrounds. These findings also suggest that when it comes to recommendations, students base their advice on the quality of teaching and learning and the supportiveness of the educational

experience. Thus, student feedback serves as a valuable peer-to-peer resource, guiding fellow students to courses where they will have the opportunity to experience a quality learning environment.

This study also revealed the absence of significant bias based on instructor gender or race/ethnicity, suggesting that students' perceptions and recommendation scores were more associated with other instructor characteristics such as tenure status and years of experience. This lack of observed bias might be attributed to potential priming effects from previous survey items. Before responding to questions about their likelihood of recommending their instructors and providing open-ended feedback, students answered 20 items related to general teaching practices. These items, which were designed to assess effective teaching behaviors and as a scale have not shown evidence of racial/ethnic or gender bias (ACUE, 2022), could have primed students to focus more on pedagogical effectiveness and experiences in the course than on the demographic factors of the instructor. This setup might have mitigated or neutralized inherent biases often present in direct evaluations of instructors. This finding could inform future strategies for bias mitigation in instructor evaluations or even other types of performance evaluations.

Limitations

There are some relevant limitations to this study. The first caveat to consider is that all the instructors in the sample were participating in a course on ACUE's Effective Teaching Practice Framework at the time of the survey. This may in part explain the overall positive student evaluations of their instructors. Moreover, the low number of students who evaluated their instructors with low ratings and who provided critical feedback mentioning their academic challenges limits the diversity of these types of responses, restricting the variety of themes identified. This lack of varied feedback constrains the ability to explore students' negative experiences and challenges with more depth, which could provide valuable insights into areas requiring special attention when informing faculty development initiatives.

Additionally, the items about effective teaching practices included before the instructor evaluations might have primed students' responses to focus on particular aspects of instruction. Studies without such priming may uncover different themes in student responses. Future research could further explore priming effective teaching strategies as a means of mitigating bias.

Implications and Conclusions

This study provides a better understanding of what informs student recommendations of professors and highlights the critical role of clear communication, supportive interactions, personal approach, and engaging teaching methods in cultivating a positive learning environment, emphasizing how developments in these areas could promote student satisfaction. By understanding the specific aspects of teaching that resonate with students, higher education institutions can better tailor faculty development programs and instructor evaluations to enhance instructional quality and student learning experiences.



Moreover, the inclusion of feedback from groups that are not often the focus of research on student evaluations of teaching, such as students at MSIs and those in 2-year institutions, enriches this understanding by bringing attention to some of their specific needs and perspectives that are often overlooked. This study demonstrates that students' prioritization of various instructional aspects varies with cultural and contextual differences, reinforcing the importance of adopting a multidimensional approach to faculty support and evaluation. These considerations are critical for advancing instructor effectiveness and ensuring student success across diverse educational settings.

In conclusion, this research enriches the understanding of student needs in the higher educational landscape, offering insights that can lead to more supportive, effective, and comprehensive teaching practices.

6. References

- Armbruster, P., Patel, M., Johnson, E., & Weiss, M. (2009, September 1). Active learning and student-centered pedagogy improve student attitudes and performance in introductory biology. *CBE Life Sciences Education*, 8(3), 203–213. <https://doi.org/10.1187/cbe.09-03-0025>
- Association of College and University Educators [ACUE]. (2022, June). *ACUE student survey shows no evidence of bias*. https://acue.org/wp-content/uploads/2022/12/ACUE_22_Student-Survey-Bias-Brief-2022_v2-2.pdf
- Boyd, R. L. (2018). MEH: Meaning extraction helper (version 2.3.02) [Software]. <https://www.ryanboyd.io/software/meh>
- Burrowes, P. A. (2003, September). A student-centered approach to teaching general biology that really works: Lord’s constructivist model put to a test. *The American Biology Teacher*, 65(7), 491–502. <https://doi.org/10.2307/4451548>
- Chung, C. K., and Pennebaker, J. W. (2008, February). Revealing dimensions of thinking in open-ended self-descriptions: An automated meaning extraction method for natural language. *Journal of Research in Personality*, 42(1), 96–132. <https://doi.org/10.1016/j.jrp.2007.04.006>
- Clayson, D. E. (2019). Student perception of instructors: The effect of age, gender and political leaning. *Assessment & Evaluation in Higher Education*, 45(4), 607–616. <https://doi.org/10.1080/02602938.2019.1679715>
- Davis, R. E., Lee, S., Johnson, T. P., Yu, W., Reyes, L. I., & Thrasher, J. F. (2022). Individual-level cultural factors and use of survey response styles among Latino survey respondents. *Hispanic Journal of Behavioral Sciences*, 44(3), 216–242. <https://doi.org/10.1177/07399863231183023>
- Elson, R. J., Gupta, S., & Krispin, J. (2018, May). Students’ perceptions of instructor interaction, feedback, and course effectiveness in a large class environment. *Journal of Instructional Pedagogies*, 20. <https://files.eric.ed.gov/fulltext/EJ1178738.pdf>
- Freeman, S., Haak, D., & Wenderoth, M. P. (2011, June 1). Increased course structure improves performance in introductory biology. *CBE Life Sciences Education*, 10(2), 175–186. <https://doi.org/10.1187/cbe.10-08-0105>
- Gallup & Strada Education Network (2018). 2018 Strada–Gallup alumni survey: Mentoring college students to success. *Gallup*. <https://news.gallup.com/reports/244058/2018-strada-gallup-alumni-survey.aspx>
- Hopwood, C. J., Flato, C. G., Ambwani, S., Garland, B. H., & Morey, L. C. (2009). A comparison of Latino and Anglo socially desirable responding. *Journal of Clinical Psychology*, 65(7), 769–780. <https://doi.org/10.1002/jclp.20584>

- Lee, J. A. (2010). Students' perceptions of and satisfaction with faculty diversity. *College Student Journal*, 44(2), 400–412. <https://psycnet.apa.org/record/2010-11460-016>
- Marín, G., Gamba, R. J., & Marín, B. V. (1992). Extreme response style and acquiescence among Hispanics: The role of acculturation and education. *Journal of Cross-Cultural Psychology*, 23(4), 498–509. <https://doi.org/10.1177/0022022192234006>
- Markowitz, D. M. (2021, February 23). The meaning extraction method: An approach to evaluate content patterns from large-scale language data. *Frontiers in Communication*, 6, Article 588823. <https://doi.org/10.3389/fcomm.2021.588823>
- Martin, M. M., Chesebro, J. L., & Mottet, T. P. (1997). Students' perceptions of instructors' socio-communicative style and the influence on instructor credibility and situational motivation. *Communication Research Reports*, 14(4), 431–440. <https://doi.org/10.1080/08824099709388686>
- Mayhew, M. J., Rockenbach, A. N., Bowman, N. A., Seifert, T. A. D., Wolniak, G. C., Pascarella, E. T., & Terenzini, P. T. (2016). *How college affects students: 21st century evidence that higher education works* (Vol. 3). Jossey-Bass.
- Mazur, E. (2009, January 2). Farewell, lecture? *Science*, 323(5910), 50–51. <https://doi.org/10.1126/science.1168927>
- Otter, R. R., Seipel, S., Graeff, T., Alexander, B., Boraiko, C., Gray, J., Petersen, K., & Sadler, K. (2013, October). Comparing student and faculty perceptions of online and traditional courses. *Internet and Higher Education*, 19(1), 27–35. <http://dx.doi.org/10.1016/j.iheduc.2013.08.001>
- Schussler, E. E., Weatherton, M., Chen Musgrove, M. M., Brigati, J. R., & England, B. J. (2021, June). Student perceptions of instructor supportiveness: What characteristics make a difference? *CBE Life Sciences Education*, 20(2), ar29. <https://doi.org/10.1187/cbe.20-10-0238>
- Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage Publications.

7. Appendix

Appendix 1

Differences in Theme Scores by Student Gender

Themes	Male Students	Female Students
Main Theme 1: Instructional Clarity		
Clear Assignment Expectations and Feedback	-0.00 (0.07)	0.05 (0.07)
Simplified Complex Concepts	-0.06 (0.12)	0.04 (0.12)
Clear Course Expectations and Instructions	0.05 (0.08)	-0.06 (0.08)
Exam Readiness and Clarity	-0.05 (0.04)	0.06 (0.04)
Detailed Explanations	-0.02 (0.01)	0.02 (0.01)
Main Theme 2: Student Support		
Perceptions of Care	-0.31** (0.12)	0.29** (0.11)
Learning Resources and Guidance	-0.02 (0.05)	0.00 (0.05)
Extra Credit Opportunities	0.01 (0.05)	-0.00 (0.04)
Responsive Email Communication	19.26 (20.30)	-13.89 (18.13)
Main Theme 3: Perceived Attributes of the Instructor		
Instructor "Teaching Style"	0.03 (0.06)	-0.08 (0.06)
Encouraging and Welcoming Instructor	-0.03 (0.05)	0.02 (0.05)
"Best" Instructor	-0.06 (0.03)	0.07* (0.03)
Professional and Informative Instructor	0.00 (0.03)	0.01 (0.03)
Kind Instructor	0.01 (0.05)	-0.01 (0.04)
Main Theme 4: Active Learning		
Engaging Class Experience	0.18 (0.12)	-0.17 (0.12)
Openness to Questions	-0.15 (0.08)	0.18* (0.08)
Real-World Application of Content	0.02 (0.04)	-0.02 (0.04)

Note: This table compares theme scores of male students to all other gender categories and female students to all other gender categories.

Appendix 2

Differences in Theme Scores by Student Race and Ethnicity

Themes	Asian	Black/African American	Hispanic/Latino	White
Main Theme 1: Instructional Clarity				
Clear Assignment Expectations and Feedback	0.01 (0.13)	-0.07 (0.10)	0.03 (0.07)	0.03 (0.07)
Simplified Complex Concepts	0.28 (0.25)	-0.13 (0.15)	-0.03 (0.11)	-0.16 (0.11)
Clear Course Expectations and Instructions	0.13 (0.17)	-0.26** (0.07)	0.07 (0.07)	0.06 (0.07)
Exam Readiness and Clarity	0.15 (0.09)	-0.08* (0.04)	-0.03 (0.04)	0.04 (0.04)
Detailed Explanations	-0.01 (0.01)	0.02 (0.02)	-0.01 (0.01)	0.01 (0.01)
Main Theme 2: Student Support				
Perceptions of Care	-0.25 (0.20)	-0.10 (0.16)	0.14 (0.12)	-0.07 (0.12)
Learning Resources and Guidance	0.02 (0.07)	0.04 (0.07)	0.18** (0.05)	-0.10* (0.05)
Extra Credit Opportunities	-0.12*** (0.04)	-0.04 (0.05)	0.09* (0.05)	0.00 (0.05)
Responsive Email Communication	-18.25*** (6.03)	34.02 (38.53)	-3.45 (14.00)	-6.06 (11.02)
Main Theme 3: Perceived Attributes of the Instructor				
Instructor "Teaching Style"	0.09 (0.12)	0.04 (0.09)	-0.07 (0.05)	-0.01 (0.05)
Encouraging and Welcoming Instructor	0.09 (0.10)	-0.14* (0.07)	0.12* (0.05)	-0.07 (0.05)
"Best" Instructor	-0.14*** (0.03)	0.03 (0.05)	-0.05 (0.04)	0.06 (0.03)
Professional and Informative Instructor	-0.02 (0.05)	0.07 (0.06)	0.01 (0.03)	-0.05 (0.03)
Kind Instructor	0.12 (0.12)	-0.01 (0.05)	-0.00 (0.04)	-0.03 (0.04)
Main Theme 4: Active Learning				
Engaging Class Experience	-0.09 (0.17)	0.23 (0.17)	-0.18 (0.11)	0.19 (0.11)
Openness to Questions	0.17 (0.17)	-0.09 (0.10)	0.03 (0.08)	-0.02 (0.09)
Real-World Application of Content	0.02 (0.09)	-0.02 (0.05)	0.01 (0.04)	0.01 (0.04)

Note: This table reports results as non-exclusive categories, comparing students from one racial/ethnic group against an aggregate of all other groups.

Appendix 3

Differences in Theme Scores by Student Age, College Generational Status, and Enrollment Status

Themes	Students Over 24 Years Old (vs. Others)	First-Generation College Students (vs. Others)	Enrollment Status (Part-Time vs. Full- Time)
Main Theme 1: Instructional Clarity			
Clear Assignment Expectations and Feedback	-0.03 (0.08)	0.00 (0.07)	-0.05 (0.09)
Simplified Complex Concepts	-0.02 (0.13)	-0.12 (0.11)	0.03 (0.13)
Clear Course Expectations and Instructions	0.15 (0.08)	-0.14 (0.08)	-0.06 (0.08)
Exam Readiness and Clarity	-0.04 (0.04)	0.05 (0.04)	-0.07 (0.04)
Detailed Explanations	0.03 (0.02)	0.01 (0.01)	-0.01 (0.02)
Main Theme 2: Student Support			
Perceptions of Care	-0.09 (0.12)	0.21 (0.12)	0.09 (0.14)
Learning Resources and Guidance	-0.03 (0.06)	0.12** (0.05)	0.03 (0.07)
Extra Credit Opportunities	-0.06 (0.03)	-0.08 (0.05)	-0.04 (0.04)
Responsive Email Communication	23.22 (17.84)	-7.85 (14.68)	-11.13 (22.05)
Main Theme 3: Perceived Attributes of the Instructor			
Instructor "Teaching Style"	0.24*** (0.07)	0.02 (0.05)	0.03 (0.08)
Encouraging and Welcoming Instructor	0.07 (0.06)	0.03 (0.05)	-0.04 (0.07)
"Best" Instructor	-0.02 (0.03)	0.03 (0.03)	0.04 (0.04)
Professional and Informative Instructor	0.12** (0.04)	-0.03 (0.03)	-0.02 (0.04)
Kind Instructor	-0.05 (0.05)	0.07 (0.04)	0.05 (0.05)
Main Theme 4: Active Learning			
Engaging Class Experience	-0.26* (0.12)	0.08 (0.11)	-0.07 (0.13)
Openness to Questions	0.09 (0.09)	0.05 (0.08)	0.08 (0.11)
Real-World Application of Content	0.07 (0.05)	0.04 (0.04)	0.00 (0.05)

Note: First-generation college students are compared to students who were categorized as "continuing generation" or as "unsure/unknown."

Appendix 4

Differences in Theme Scores by Student Institution Type

Themes	4-Year Institutions (vs. 2-Year Institutions)	MSIs (vs. Others)
Main Theme 1: Instructional Clarity		
Clear Assignment Expectations and Feedback	0.13 (0.08)	-0.23** (0.08)
Simplified Complex Concepts	-0.24* (0.12)	0.16 (0.11)
Clear Course Expectations and Instructions	0.04 (0.08)	0.00 (0.07)
Exam Readiness and Clarity	0.03 (0.04)	0.03 (0.04)
Detailed Explanations	0.01 (0.02)	0.01 (0.01)
Main Theme 2: Student Support		
Perceptions of Care	0.18 (0.11)	0.22* (0.11)
Learning Resources and Guidance	0.07 (0.05)	0.12** (0.05)
Extra Credit Opportunities	0.14*** (0.04)	-0.07 (0.05)
Responsive Email Communication	12.48 (18.58)	-15.87 (17.19)
Main Theme 3: Perceived Attributes of the Instructor		
Instructor "Teaching Style"	-0.01 (0.06)	-0.04 (0.06)
Encouraging and Welcoming Instructor	0.03 (0.05)	-0.06 (0.05)
"Best" Instructor	-0.07* (0.04)	0.04 (0.03)
Professional and Informative Instructor	-0.03 (0.03)	0.07* (0.03)
Kind Instructor	-0.18*** (0.05)	0.03 (0.04)
Main Theme 4: Active Learning		
Engaging Class Experience	-0.26* (0.12)	-0.01 (0.11)
Openness to Questions	0.05 (0.10)	-0.19* (0.09)
Real-World Application of Content	-0.07 (0.04)	0.02 (0.04)

Note: MSIs include Hispanic-Serving Institutions (HSIs) and Historically Black College and Universities (HBCUs).

Appendix 5

Differences in Theme Scores by Student Class Standing (Compared to First-Year Students)

Themes	Sophomore	Junior	Senior	Graduate Students	Other
<i>Main Theme 1: Instructional Clarity</i>					
Clear Assignment Expectations and Feedback	0.04 (0.09)	-0.05 (0.11)	-0.08 (0.09)	0.12 (0.12)	-0.19 (0.16)
Simplified Complex Concepts	-0.07 (0.15)	-0.07 (0.17)	-0.05 (0.18)	-0.21 (0.16)	0.27 (0.26)
Clear Course Expectations and Instructions	0.13 (0.09)	0.20 (0.10)	0.13 (0.10)	0.44*** (0.13)	-0.02 (0.16)
Exam Readiness and Clarity	-0.06 (0.05)	0.05 (0.07)	0.10 (0.08)	-0.06 (0.06)	-0.00 (0.09)
Detailed Explanations	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.05 (0.03)	0.02 (0.03)
<i>Main Theme 2: Student Support</i>					
Perceptions of Care	-0.09 (0.14)	0.16 (0.17)	0.66** (0.22)	0.50* (0.21)	0.11 (0.21)
Learning Resources and Guidance	-0.13* (0.06)	0.03 (0.07)	-0.07 (0.06)	0.02 (0.09)	-0.07 (0.13)
Extra Credit Opportunities	-0.00 (0.05)	0.01 (0.05)	0.09 (0.07)	0.14 (0.12)	-0.06 (0.05)
Responsive Email Communication	18.44 (13.35)	15.44 (11.38)	30.78 (16.48)	49.04 (40.42)	-20.13 (11.87)
<i>Main Theme 3: Perceived Attributes of the Instructor</i>					
Instructor "Teaching Style"	0.08 (0.08)	-0.02 (0.08)	-0.10 (0.08)	0.24* (0.11)	0.07 (0.14)
Encouraging and Welcoming Instructor	-0.03 (0.07)	-0.11 (0.07)	-0.00 (0.08)	0.15 (0.10)	-0.04 (0.11)
"Best" Instructor	-0.03 (0.05)	-0.02 (0.05)	0.07 (0.08)	0.02 (0.06)	0.12 (0.10)
Professional and Informative Instructor	0.02 (0.04)	0.00 (0.05)	-0.02 (0.04)	-0.01 (0.05)	-0.01 (0.08)
Kind Instructor	-0.02 (0.07)	-0.13* (0.07)	-0.23*** (0.06)	-0.19*** (0.06)	-0.25*** (0.07)
<i>Main Theme 4: Active Learning</i>					
Engaging Class Experience	0.25 (0.16)	-0.18 (0.16)	-0.28 (0.16)	-0.66*** (0.16)	-0.13 (0.25)
Openness to Questions	0.00 (0.10)	0.12 (0.13)	0.21 (0.15)	0.08 (0.13)	0.05 (0.21)
Real-World Application of Content	0.06 (0.05)	0.07 (0.10)	0.05 (0.05)	-0.01 (0.06)	0.07 (0.11)

Note: The results of these regressions considered first-year students as the reference group.

Appendix 6

Differences in Theme Scores by Instructor Gender and Race/Ethnicity

Themes	Female Instructors	Male Instructors	White Instructors (vs. Others)
<i>Main Theme 1: Instructional Clarity</i>			
Clear Assignment Expectations and Feedback	-0.06 (0.08)	0.08 (0.08)	-0.12 (0.07)
Simplified Complex Concepts	-0.11 (0.12)	0.14 (0.12)	-0.08 (0.11)
Clear Course Expectations and Instructions	-0.07 (0.08)	0.01 (0.08)	-0.13 (0.07)
Exam Readiness and Clarity	-0.01 (0.04)	0.01 (0.04)	0.03 (0.04)
Detailed Explanations	-0.00 (0.01)	-0.00 (0.01)	-0.02 (0.01)
<i>Main Theme 2: Student Support</i>			
Perceptions of Care	0.07 (0.12)	0.00 (0.13)	-0.07 (0.12)
Learning Resources and Guidance	0.05 (0.05)	-0.08 (0.05)	0.03 (0.05)
Extra Credit Opportunities	0.02 (0.04)	-0.01 (0.04)	-0.02 (0.04)
Responsive Email Communication	-20.47 (19.31)	-4.86 (11.90)	-6.32 (13.64)
<i>Main Theme 3: Perceived Attributes of the Instructor</i>			
Instructor "Teaching Style"	-0.01 (0.06)	-0.01 (0.06)	-0.02 (0.05)
Encouraging and Welcoming Instructor	-0.07 (0.05)	0.08 (0.06)	-0.01 (0.05)
"Best" Instructor	0.08* (0.04)	-0.06 (0.04)	0.02 (0.04)
Professional and Informative Instructor	-0.00 (0.03)	0.01 (0.03)	-0.03 (0.03)
Kind Instructor	-0.06 (0.05)	0.08 (0.05)	0.04 (0.04)
<i>Main Theme 4: Active Learning</i>			
Engaging Class Experience	-0.23 (0.12)	0.18 (0.12)	0.35** (0.11)
Openness to Questions	-0.01 (0.08)	0.02 (0.08)	0.01 (0.07)
Real-World Application of Content	0.06 (0.04)	-0.06 (0.04)	0.05 (0.04)

Note: Due to the low proportion of instructors from various racial groups, they were categorized as either "White" or "Other race/ethnicity" for regression analysis.

Appendix 7

Differences in Theme Scores by Instructor Tenure Status, Discipline, and Years of Experience

Themes	Tenure Status (Tenure Track vs. Non- Tenure Track)	Discipline (STEM vs. Others)	Years of Experience (More Than 15 years vs. Less Than 15 years)
Main Theme 1: Instructional Clarity			
Clear Assignment Expectations and Feedback	0.01 (0.07)	-0.13 (0.07)	0.06 (0.07)
Simplified Complex Concepts	0.14 (0.11)	0.71*** (0.13)	-0.10 (0.11)
Clear Course Expectations and Instructions	0.07 (0.07)	0.05 (0.08)	0.01 (0.07)
Exam Readiness and Clarity	0.02 (0.04)	0.08 (0.05)	-0.04 (0.04)
Detailed Explanations	0.03* (0.01)	-0.00 (0.01)	-0.01 (0.01)
Main Theme 2: Student Support			
Perceptions of Care	-0.04 (0.11)	0.03 (0.12)	0.03 (0.12)
Learning Resources and Guidance	-0.04 (0.05)	-0.02 (0.05)	0.06 (0.05)
Extra Credit Opportunities	0.10* (0.04)	0.12* (0.05)	-0.05 (0.04)
Responsive Email Communication	-7.38 (16.86)	-15.37 (11.47)	-30.25*** (9.03)
Main Theme 3: Perceived Attributes of the Instructor			
Instructor "Teaching Style"	0.07 (0.05)	0.09 (0.06)	0.08 (0.06)
Encouraging and Welcoming Instructor	0.02 (0.05)	0.07 (0.05)	-0.07 (0.05)
"Best" Instructor	-0.04 (0.03)	0.00 (0.04)	0.01 (0.03)
Professional and Informative Instructor	0.04 (0.03)	-0.03 (0.03)	-0.01 (0.03)
Kind Instructor	-0.01 (0.04)	0.08 (0.05)	0.00 (0.04)
Main Theme 4: Active Learning			
Engaging Class Experience	0.13 (0.11)	-0.06 (0.11)	0.29* (0.11)
Openness to Questions	0.06 (0.08)	0.11 (0.10)	-0.04 (0.09)
Real-World Application of Content	-0.04 (0.04)	-0.07 (0.05)	-0.05 (0.04)

Appendix 8

Differences in Theme Scores by Course Characteristics

Themes	Course Format (Face-to-Face vs. Online/Hybrid)	Course Size	
		20–100 vs. Fewer Than 20 students	20–100 vs. More Than 100 students
Main Theme 1: Instructional Clarity			
Clear Assignment	-0.31*** (0.07)	0.06 (0.07)	-0.17 (0.09)
Expectations and Feedback			
Simplified Complex Concepts	0.12 (0.12)	-0.09 (0.10)	0.18 (0.32)
Clear Course Expectations and Instructions	-0.01 (0.07)	0.08 (0.07)	0.04 (0.16)
Exam Readiness and Clarity	0.08 (0.04)	-0.06 (0.04)	0.33** (0.12)
Detailed Explanations	-0.01 (0.01)	-0.01 (0.01)	-0.03 (0.01)
Main Theme 2: Student Support			
Perceptions of Care	0.22 (0.12)	0.08 (0.11)	0.75** (0.29)
Learning Resources and Guidance	-0.17** (0.06)	0.07 (0.05)	-0.06 (0.05)
Extra Credit Opportunities	0.02 (0.04)	-0.01 (0.04)	0.01 (0.11)
Responsive Email Communication	-22.00 (14.54)	0.57 (14.44)	-4.06 (10.79)
Main Theme 3: Perceived Attributes of the Instructor			
Instructor “Teaching Style”	0.10 (0.06)	-0.00 (0.05)	0.14 (0.13)
Encouraging and Welcoming Instructor	-0.04 (0.05)	0.00 (0.05)	-0.06 (0.09)
“Best” Instructor	0.08* (0.03)	0.02 (0.04)	0.05 (0.08)
Professional and Informative Instructor	0.05 (0.03)	0.02 (0.03)	-0.07** (0.03)
Kind Instructor	0.03 (0.05)	-0.03 (0.04)	-0.05 (0.09)
Main Theme 4: Active Learning			
Engaging Class Experience	-0.00 (0.12)	-0.15 (0.11)	0.02 (0.20)
Openness to Questions	-0.08 (0.08)	0.10 (0.08)	-0.05 (0.14)
Real-World Application of Content	0.01 (0.05)	0.02 (0.05)	-0.04 (0.04)

Note: These results of the regressions based on course size considered students in courses with 21–100 students as the reference group.

Appendix 9

Differences in Theme Scores by Themes Commented on

Themes	Coefficient (SE)
<i>Main Theme 1: Instructional Clarity</i>	-0.06 (0.05)
Clear Assignment Expectations and Feedback	-0.22** (0.08)
Simplified Complex Concepts	0.16** (0.06)
Clear Course Expectations and Instructions	0.10 (0.07)
Exam Readiness and Clarity	-0.19 (0.10)
Detailed Explanations	-0.04 (0.11)
<i>Main Theme 2: Student Support</i>	0.18*** (0.05)
Perceptions of Care	0.26*** (0.06)
Learning Resources and Guidance	0.16* (0.07)
Extra Credit Opportunities	-0.03 (0.11)
Responsive Email Communication	-0.01 (0.30)
<i>Main Theme 3: Perceived Attributes of the Instructor</i>	0.17*** (0.05)
Instructor "Teaching Style"	0.16** (0.06)
Encouraging and Welcoming Instructor	0.10 (0.06)
"Best" Instructor	0.22*** (0.07)
Professional and Informative Instructor	0.17** (0.06)
Kind Instructor	-0.11 (0.08)
<i>Main Theme 4: Active Learning</i>	0.05 (0.05)
Engaging Class Experience	0.04 (0.07)
Openness to Questions	0.04 (0.08)



Themes	Coefficient (SE)
Real-World Application of Content	0.13 (0.10)

Note: As the thematic analysis defined neutral themes, the direction of the impact cannot be accurately interpreted.