JUTLP
Journal of University Teaching & Learning Practice

Role Clarity and Conflict in Team Teaching: Impacts on Student Learning Outcomes in Higher Education

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Abstract

This study examines how team-teaching climate relates to students' perceptions of their role conflict and role clarity, and how these perceptions influence perceived competency and satisfaction in higher education. Data were collected from 184 undergraduates enrolled in a team-taught course at a large public American university. Participants completed an online survey measuring perceptions of team-teaching climate, role conflict and role clarity, and learning outcomes related to satisfaction and competency. A mixed-methods design was employed, combining quantitative survey analysis with qualitative student feedback from open-ended course evaluations. Results indicate that a positive team-teaching climate is significantly associated with lower levels of role conflict and higher levels of role clarity. Further, role conflict is negatively related to perceived competency and satisfaction, whereas role clarity shows a positive relationship with learning outcomes. Qualitative findings provide contextual insight into how students experience instructional coordination, clarity, and confusion in team-taught courses, reinforcing and elaborating upon the quantitative results. Together, these findings underscore the importance of faculty development initiatives that support effective communication, coordination, and consistent instructional messaging in team teaching. By clarifying how team-teaching climate shapes students' role perceptions and learning outcomes, this study contributes to both theory and practice in collaborative teaching in higher education.

Editors

Section: Curriculum and Assessment Design
Senior Editor: Alison Purvis
Associate Editor: Victoria Nicholas

Publication

Submission: 1 June 2024
Revised: 1 September 2025
Accepted: 17 March 2026
Published: 25 May 2026

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Practitioner Notes

1. Effective team teaching begins with a positive teaching climate as perceived by students.
2. Students learn best in team-taught courses when instructor expectations are clear and consistent.
3. Alignment in course content, assessment, and instructional expectations is essential to reducing student role conflict.
4. When instructors send mixed or inconsistent signals, students report confusion, lower satisfaction, and reduced competency.
5. Overall, effective team teaching relies more on clear coordination and shared expectations than on individual teaching styles.

Keywords

Team teaching, role clarity, role conflict, satisfaction, competency

Citation:

Killingsworth, B. L., Xue, Y., Reed, A. H., Eseryel, U. Y., and Johnson-Snyder, A. J. (2026). Role clarity and conflict in team teaching: Impacts on student learning outcomes in higher education. *Journal of University Teaching and Learning Practice, 23*(2). https://doi.org/10.53761/gqwz8255

Introduction

Reforms and the globalisation of higher education have driven increased adoption of student-centred instructional pedagogies. Within this context, team teaching (i.e., multiple instructors collaboratively teaching a single course) has become more common (Dang et al., 2022). Team teaching, also referred to as co-teaching, brings together instructors who collaborate and divide responsibilities for planning, delivering, and assessing a course (Cordie et al., 2020). While adoption varies across regions due to differences in funding models, cultural norms, and regulatory environments, team teaching has gained traction across higher education systems. Team teaching is increasingly used in higher education systems in the United States (Morton, 2024; Zach & Avugos, 2024), Australia (Dang et al., 2022; Riebe et al., 2017), and Finland (Mariën et al., 2023), reflecting its growing prominence across diverse institutional and disciplinary contexts.

Extant research suggests that team teaching offers benefits for both instructors and students, including instructional innovation, professional growth, and enriched learning experiences (Rytivaara et al., 2024; Freedman & Somech, 2021). Prior scholarship highlights this dual focus, noting that teaching and learning are intrinsically interconnected, such that many pedagogical interventions aim to influence both instructors' practices and students' learning outcomes (Álvarez et al., 2023). At the same time, team teaching presents challenges that can affect these outcomes, such as satisfaction and competency, in ways that differ from sole-teaching settings (Crossman & Behrens, 1992; Neumann et al., 2008; Wöllner & Ginsborg, 2011). Despite these implications for students, most existing research on instructor and student outcomes relies primarily on data collected from instructors rather than students themselves (Dang et al., 2022; Decuyper et al., 2023; Mariën et al., 2023).

While team teaching is an increasingly popular topic of investigation (Roland & Jones, 2020), relatively few studies investigate it from the student's perspective. Existing student-focused research suggests that team teaching can provide exposure to multiple viewpoints, increased engagement, improved content recall, encouragement, and confidence building (Gono & de Moraes, 2023; Neumann et al., 2008). However, this limited body of student-centred research highlights notable disadvantages, including lack of agreement or commitment to the purpose of team teaching among instructors (Wöllner & Ginsborg, 2011), inadequate course coordination, insufficient content continuity, and ineffective instructor transitions (Neumann et al., 2008).

Two gaps in the team-teaching literature must be addressed to better understand how team teaching can improve student outcomes in higher education. First, much of the existing empirical research has been conducted in K-12 contexts (Carpenter et al., 2007; Murawski & Swanson, 2001). Without postsecondary empirical studies, it remains unclear whether findings from K-12 settings apply to higher education. Second, most team-teaching research centres on instructor behaviour (e.g., Decuyper et al., 2023; Kaufman & Brooks, 1996; Sagliano et al., 1998) and on process or outcome perceptions from the instructor's stance (e.g., Wöllner & Ginsborg, 2011; Yopp et al., 2014). In higher education, the literature remains sparse in examining impacts on the learning process and outcome perceptions from the students' perspective (Gono & de Moraes, 2023; Killingsworth & Xue, 2015; Neumann et al., 2008; Wöllner & Ginsborg, 2011). This study addresses the first gap by examining student outcomes in higher education, and the second by focusing on students' perspectives.

Specifically, this study addresses the following research questions:

1. What is the impact of perceived team-teaching climate on students' role conflict and role clarity?
2. How do students' role-related perceptions influence their perceived competency and satisfaction in the higher education setting?

The following sections review the relevant literature and develop the research model and hypotheses.

Literature

Team Teaching in Higher Education

Team teaching, used for decades across disciplines, is recognized for enriching learning through interdisciplinary perspectives and collaborative instructional design (Rytivaara et al., 2024; Yanamandram & Noble, 2006). Some institutions adopt team teaching to foster instructor growth and innovation by leveraging complementary expertise (Hamlin & Leslie, 2019). Higher education pedagogies often emphasize diverse perspectives to enhance learning and prepare students for the workforce. Team teaching stands out by bringing together instructors with complementary expertise to create a multifaceted learning environment. This approach supports collaboration among instructors with diverse expertise, helping manage the complexity of team-taught courses and improve instructional alignment (Keeley & Benton-Short, 2020; Hains-Wesson, 2022).

However, the effectiveness of team teaching depends on how well instructors coordinate their roles and expectations. Its success depends on clear communication and alignment, as conflicting expectations can create confusion and negatively affect students' experiences (Killingsworth & Xue, 2015; Yanamandram & Noble, 2006). Recent empirical work shows that collaboration and shared responsibility are core dimensions of team-teaching practice, though the degree of shared responsibility varies across implementations (Decuyper et al., 2023). Practice-oriented accounts similarly highlight that team teaching involves ongoing negotiation of roles, communication routines, and shared instructional control, which shape how it is experienced (Hains-Wesson, 2022).

Comparing Team Teaching to Other Pedagogical Approaches

Other pedagogies—collaborative learning, experiential learning, and case studies—also expose students to diverse perspectives. In collaborative learning, students work in groups to co-construct knowledge (La Rocca et al., 2014), while experiential learning immerses them in real-world contexts, allowing them to encounter varied viewpoints (Kolb & Kolb, 2017). Case studies, on the other hand, achieve this by engaging students in analysing complex, multifaceted scenarios (Herreid, 2011). Across these pedagogies, clarity of roles and expectations is critical, as ambiguity or poorly defined responsibilities can hinder learning (Tidd & Friedman, 2002). Unlike these approaches, team teaching places primary responsibility for coordination and instructional alignment on instructors rather than students, which can directly shape students' clarity about their roles and increase the potential for role conflict when expectations are inconsistent.

Research from instructors' perspectives suggests students may benefit from the pedagogical diversity inherent in collaborative instructional arrangements. Prior studies indicate that exposure

to multiple teaching styles can enhance engagement and understanding (Hu, 2024). Team teaching has also been associated with instructional innovation and improved learning as comprehension benefits from varied material coverage (Crossman & Behrens, 1992; Dang et al., 2022; Wöllner & Ginsborg, 2011). In addition, team teaching improves the inclusiveness of teaching (Iacono et al., 2021) by helping address the learning needs of a diverse group of students (Mariën et al., 2023). From an instructional standpoint, team teaching supports instructor development through knowledge transfer and increased self-reflection, which can further enhance the quality of education provided to students (Mariën et al., 2023). Importantly, these benefits depend on effective collaboration and alignment, as insufficient coordination may undermine clarity and introduce conflicting expectations.

Team teaching's disadvantages for students typically stem from ineffective implementation. Instructors with experience in team teaching identify several recurring challenges, including absence of content continuity, inadequate coordination between instructors, incompatibility in teaching approaches, and weakened student-instructor relationships (Crossman & Behrens, 1992). These conditions can contribute to student role conflict, creating confusion and reducing perceived satisfaction and competency (Crossman & Behrens, 1992; Neumann et al., 2008).

Role Clarity and Role Conflict in Team Teaching

Team-taught courses rely on the coordinated interplay of multiple instructors with distinct expertise (Cordie et al., 2020; Yanamandram & Noble, 2006). This reliance on instructor coordination shapes how students interpret expectations, responsibilities, and instructional cues within a course (Killingsworth & Xue, 2015; Neumann et al., 2008). Because team teaching depends on faculty cooperation to bridge knowledge gaps, it remains an essential yet still underexplored area of research (Rytivaara et al., 2024; Mariën et al., 2023). However, when coordination and alignment among instructors are unclear, students may experience uncertainty or conflicting expectations. As a result, issues of role clarity and role conflict become particularly salient in team-taught settings. Beyond theoretical constructs of climate and role stress, practitioner-scholar accounts emphasise the importance of shared frameworks and reflective collaboration in operationalising effective team-teaching practice (Hains-Wesson, 2022). Team teaching is therefore uniquely positioned to provide diverse perspectives and model interdisciplinary collaboration. In doing so, it also shapes students' role-related perceptions, which can influence learning outcomes (Gono & de Moraes, 2023).

Taken together, prior research suggests that the benefits of team teaching for students depend heavily on instructor coordination and the learning climate they observe. However, limited higher-education and student-centred evidence leaves unresolved how students' perceptions of team-teaching climate shape role clarity and role conflict. It also remains unclear how those role perceptions relate to perceived competency and satisfaction. Accordingly, we examine these relationships in the research model, guided by the two research questions introduced at the end of the Introduction.

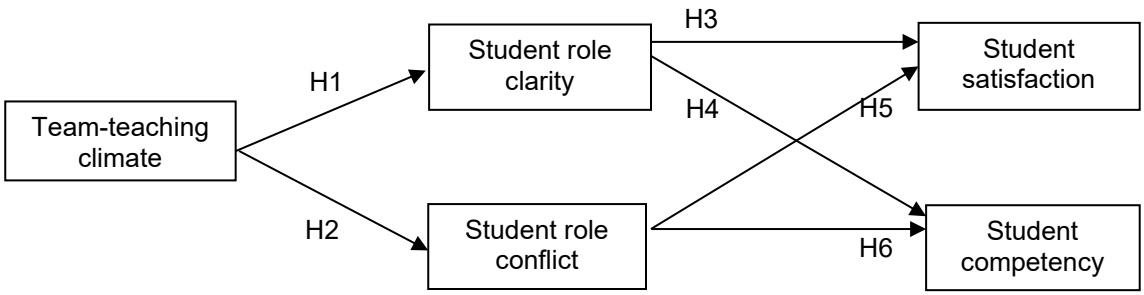
Research Model

Drawing on research in education, Motivation Theory, and team dynamics, the research model (see Figure 1) depicts factors influencing students' perceived satisfaction and competency in a team-teaching setting. The model examines how team-teaching climate, role clarity, and role

conflict relate to these learning outcomes. In team-taught courses, role clarity and role conflict function as key mediators linking team-teaching dynamics to student outcomes. The following sections define the major constructs and outline the development of the hypotheses.

Figure 1

Proposed Research Model



Many challenges associated with team teaching—such as inconsistent expectations, inadequate coordination, and weakened instructional continuity—reflect signs of a negative team climate between co-teachers (Crossman & Behrens, 1992; Neumann et al., 2008; Yanamandram & Noble, 2006). Team climate is defined as "a psychosocial construct, an internal representation of how a person perceives the conditions and interrelationships among group members" (Anshel, 2003, p. 199). Poor communication and incompatibility in instructional styles, goals, content, continuity, and transitions can arise when instructors operate within an unfavourable team climate. In contrast, when instructors improve their team climate, they are more likely to demonstrate stronger commitment to team teaching and improved performance (Lee et al., 2018; González-Romá et al., 2009; Hammar Chiriac et al., 2024). In team-taught courses, these instructor-level dynamics shape students' perceptions of the instructional environment. As a result, positive and trusting team-teaching climates are associated with more effective and supportive student learning experiences (Gono & de Moraes, 2023).

Team-teaching climate

Studies show that a team environment significantly shapes individuals' perceptions and normative beliefs (Liang et al., 2010). Team members' behaviours impact other members' perceptions, team norms, and behaviours (e.g., Eseryel et al., 2021; Eseryel & Eseryel, 2013). A team environment provides information that members use to form their own perceptions, influencing their attitudes. These perceptions then influence behavioural responses within the group, leading members to adopt new behaviours (Hülsheger et al., 2009). We define team-teaching climate as "a psychosocial construct, an internal representation of how [students] perceive the conditions and interrelationships among [members of teaching team]", adapting Anshel's (2003, p.199) team climate definition to the team-teaching setting. Research demonstrates that instructors can positively influence students through behaviour modelling, as students often emulate behaviours they observe in their instructors (Bandura, 1986). For example, Burns, Houser, and Farris (2018) note that when instructors model positive confirmation behaviours students develop more favourable attitudes and a greater willingness to engage with their instructors. Therefore, we expect a team-teaching climate to influence student behaviours and course-related outcomes.

Like other team climates, team-teaching climate is a multidimensional construct composed of innovation, trust, and affiliation. Xue et al. (2011) extend this construct, asserting that mission clarity should also be a dimension.

Yanamandram and Noble (2006) note that a lack of cooperation among team-teaching members during course planning and administration detracts from the student learning experience. A unified view of the course mission is needed to consistently communicate requirements and objectives. These four dimensions are therefore included in this study and described below.

- Mission clarity is the tenet that the team's goals and mission are clearly established and understood. Team dynamics literature shows that mission clarity is vital in developing teams as core educational entities (Som et al., 2012) and fostering the success of collaborative project groups (Ofori, 2013). The measure for mission clarity is adapted from Xue et al. (2005). A sample item is "Instructors are clear what their team is supposed to accomplish for this course." Since this study assesses students' opinions of the team climate regarding team teaching, using an expanded view that includes mission clarity is appropriate.
- Affiliation refers to the students' perception that team members exhibit a sense of togetherness; it is reflected by the positive and respectful behaviour demonstrated by team members through their efforts to collaborate and support each other. Miles and Foggett (2016) contend that teaching team members must remain fully engaged to provide effective learning support. The measure for affiliation is adapted from Bock et al. (2005) and Kim and Lee (1995). A sample item is "Instructors in this course's teaching team display a strong degree of teamwork."
- Innovation is the perception of an open-minded environment that supports change and creativity, such as when instructors take risks by attempting novel initiatives with limited or no prior experience. The measure is adapted from Bock et al. (2005) and Kim and Lee (1995). A sample item is "Instructors value taking risks even if that turns out to be a failure."
- Fairness involves creating a classroom environment based on consistent, equitable methods and devoid of arbitrary actions. The measure is adapted from Bock et al. (2005) and Kim and Lee (1995). A sample item is "My instructors don't show favouritism to anyone."

In a team-teaching setting, Killingsworth and Xue (2015) find that team-teaching dynamics influence students' perceptions of satisfaction and competency. They further find that clarity of team-teaching mission and fairness significantly impact outcomes. However, team dynamics research shows mixed results regarding the influence of affiliation on member attitude (Ashforth & Mael, 1989; Killingsworth et al., 2016). For instance, in studies on knowledge-sharing within teams, social connection has been shown to sway group attitudes (Liang et al., 2010). Conversely, in virtual global teams, affiliation is not significantly affected by positive attitudes toward knowledge sharing (Killingsworth et al., 2016).

Building on this conceptualisation of team-teaching climate, this study examines how team-teaching climate influences students' role conflict and role clarity, and how these perceptions affect satisfaction and competency. We argue that a positive team-teaching climate reduces students' role conflict and improves role clarity within a team-taught setting.

In workplace settings, perceived fairness is positively related to work effort, engagement, and organisational citizenship behaviour, but not to overall work performance (Redmond, 2013). In educational settings, students' perceptions of fairness are associated with satisfaction and competency in both traditional classrooms (Sinclair, 2014) and team-taught settings (Killingsworth & Xue, 2015).

Student role conflict and student role clarity

Two stressors shown to affect workplace performance and satisfaction are role conflict and role ambiguity (Beauchamp & Bray, 2001).

- Role conflict refers to opposing role expectations (Kahn et al., 1964). It occurs when an individual is uncertain about expectations and task priorities (Tidd & Friedman, 2002). In the workplace, role conflict negatively impacts performance (Saranani, 2015), satisfaction (Yousef, 2000) and perceived competency (McDaniel et al., 2015). In team-teaching courses, students' role conflict can arise from conflicting expectations among instructors. We posit that student role conflict in a team-teaching setting will negatively impact learning outcomes of student competency and student satisfaction. The measure is adapted from Osmonbekov and Bernard (2013) and includes four items. As a sample, one such item is "I receive incompatible requests from two or more people."
- Role clarity refers to how well an individual understands the expectations, responsibilities, and tasks of a particular role (Kinnunen et al., 2024). In workplace settings, role clarity increases perceived competency (Lambert et al., 2017; Wynne & Stringer, 1997) and commitment as measured by an employee's intention to stay (Beauchamp & Bray, 2001; Yousef, 2000). In a team-teaching setting, lack of role clarity can arise when instructors' mission and affiliation are unclear. Student role clarity was measured using a scale adapted from Osmonbekov and Bernard (2013) and includes four items. A sample item for student role clarity is "I know exactly what is expected of me in my study."

To address the first research question, we proposed that team-teaching climate is positively associated with student role clarity and negatively associated with student role conflict. Theoretically, we proposed that a positive team-teaching climate—characterised by clear communication, collaboration, and mutual alignment among instructors—fosters an environment in which students better understand their roles and responsibilities. Conversely, inconsistencies in team-teaching climate may lead to conflicting expectations and heightened role conflict. These arguments led to the following hypotheses:

H1. Team-teaching climate has a positive influence on students' role clarity.

H2. Team-teaching climate has a negative influence on students' role conflict.

Learning outcomes: Student satisfaction and student competency

The two learning outcomes examined are student satisfaction and competency. These two learning outcomes are defined below.

- Student satisfaction is a favourable emotional response arising from an assessment of the course structure, processes, and outcomes. The measure for student satisfaction is adapted from Osmonbekov and Bernard (2013) and includes four items. A sample item is "I feel real enjoyment in taking this course."

- Student competency is defined as an individual's view of their expertise and capacity to successfully perform required responsibilities (Mulder, 2014). The measure for student competency is adapted from Osmonbekov and Bernard (2013) and includes four items. A sample item is "I am able to respond to the needs of my instructors."

To address the second research question, we examine how role clarity and role conflict relate to competency and satisfaction. While prior research suggests that co-teaching can positively influence student competency (Harter & Jacobi, 2018), little research has examined the specific constructs that shape these perceptions within team-taught settings. Clear role expectations help students navigate responsibilities and increase satisfaction and competency. Conversely, conflicting role expectations may disrupt learning experiences, reducing satisfaction and perceived competency. These arguments are formalised in the following hypotheses:

H3. Student role clarity has a positive influence on student satisfaction.

H4. Student role clarity has a positive influence on student competency.

H5. Student role conflict has a negative influence on student satisfaction.

H6. Student role conflict has a negative influence on student competency.

Method

Research Design

This study was conducted in accordance with the ethical standards outlined in Purvis & Crawford (2024). Ethical considerations included ensuring voluntary participation, maintaining the confidentiality and anonymity of student responses, and using course-based data in a manner consistent with ethical research and publication standards. No identifiable student information was collected or reported in this study.

A mixed-methods approach was employed to strengthen the study's examination of team teaching from the student perspective by combining statistical testing with contextual interpretation. The quantitative survey data enabled testing of the hypothesised relationships among team-teaching climate, role clarity, role conflict, and student outcomes. However, these relationships reflect students' perceptions of instructional dynamics that cannot be fully captured through numerical measures.

Qualitative course evaluation comments were incorporated to triangulate and contextualise the quantitative findings by illustrating how students experienced clarity, conflict, coordination, and instructor alignment. This integration allowed the researchers to assess whether statistically significant relationships were reflected in students' own words, strengthening interpretive validity and ensuring that the findings represent the student learning experience. By combining quantitative and qualitative data, the mixed-methods design provided a more comprehensive understanding of how team-teaching climate influences student role perceptions and learning outcomes, aligning with the study's student-centred focus.

Participants

Data were collected from a course at a large American university following Institutional Review Board (IRB) approval. In the final weeks of the semester, 184 students in a collaboratively taught

introductory computer information systems undergraduate course completed an online survey measuring the study constructs. Of the respondents, 55 were male (29.9%) and 129 were female (70.1%). Their average age was 19.22 (SD = 1.18). The required course covered Microsoft Office tools and foundational computer concepts. Approximately one week later, students completed the university-required course evaluation, from which qualitative data were retrieved. Prompts included: “What do you feel are the strengths of this course?”, “What would you change to improve this course?”, and an open comments section. This study combined quantitative survey data with qualitative course evaluation comments. Survey data tested the research model and hypotheses, while the qualitative comments provided complementary student perspectives on the team-teaching experience.

Measures

The survey consisted of previously validated multi-item measures adapted to the team-teaching context and assessed using Likert-type questions. All items used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Team-teaching climate was operationalised as a multidimensional construct comprising affiliation, innovation, fairness, and mission clarity. Items measuring affiliation, innovation, and fairness were adapted from Bock et al. (2005) and Kim and Lee (1995). Mission clarity items were adapted from Xue et al. (2005). Wording was minimally modified to reflect students’ perceptions of the instructional team.

Role conflict and role clarity were measured using scales adapted from Osmonbekov and Bernard (2013), grounded in role stress theory (Kahn et al., 1964). Satisfaction and competency measures were adapted from Osmonbekov and Bernard (2013) and Xue et al. (2005). Wording adjustments were limited to contextualising items for higher education while preserving the original construct meaning.

The instrument was not pilot tested, as all measures were adapted from previously validated instruments. Reliability and validity were re-established using Cronbach’s alpha, composite reliability, average variance extracted, and factor loadings, all exceeding recommended thresholds.

Procedure

Qualitative course evaluation comments were analysed using a deductive thematic analysis approach aligned with the study’s theoretical model and hypotheses. Student responses were coded according to themes related to team-teaching climate, role clarity, role conflict, and their associations with satisfaction and competency. Two independent reviewers conducted the coding, with inter-rater reliability assessed using Cohen’s Kappa and discrepancies resolved through consensus. A fuller description of the coding framework and examples is provided in the Qualitative Analysis section of the Results.

Analysis

Partial least squares (PLS) analysis was used to validate the measurements and test the hypotheses. PLS is well suited for small sample sizes and non-normal residual distribution, using a component-based method (Chin, 1998). Because PLS concurrently estimates both structural

and measurement models, it better accounts for measurement error. Common method variance was assessed using Harman's one-factor test (Podsakoff & Organ, 1986) with Varimax rotation.

This approach aligned with the study's aims to examine the relationships between team-teaching climate, role clarity, and role conflict, and their effects on satisfaction and competency. Using PLS, the hypothesised relationships (H1–H6) were tested, and the extent to which the proposed research model explained these outcomes was evaluated. PLS validated both theoretical constructs and their measurements. Cronbach's alpha and composite reliability scores were used to evaluate measurement reliability and internal consistency. All results are presented in the following section.

Results

This section presents the findings for the study's two research questions, examining (1) how perceived team-teaching climate relates to students' role conflict and role clarity, and (2) how these role perceptions relate to perceived competency and satisfaction.

Respondent Profile and Descriptive Statistics

The final sample included 184 undergraduate students enrolled in a collaboratively taught introductory computer information systems course at a large American university. Among respondents, 55 were male (29.9%) and 129 were female (70.1%), with an average age of 19.22 years (SD = 1.177).

Table 1 presents item-level descriptive statistics (means and standard deviations) and factor loadings for all measurement items. Students reported positive perceptions of the team-teaching climate, with item means ranging from 3.61 (innovation) to 4.26 (fairness). Role clarity and competency showed moderately high means, while role conflict showed lower means, indicating limited perceived conflict. Standard deviations suggest meaningful variation across constructs, supporting further analysis of the hypothesised relationships.

Table 1

Item Descriptive Statistics and Factor Loadings

Construct	Item	Mean	Standard deviation	Loading [a]
Team-teaching climate (affiliation)	1	3.78	0.966	0.823
	2	3.90	0.890	0.801
	3	3.86	0.940	0.824
	4	3.96	0.916	0.826
Team-teaching climate (fairness)	1	4.13	0.837	0.851
	2	4.04	0.855	0.775
	3	4.26	0.820	0.728
Team-teaching climate (innovation)	1	4.11	0.851	0.821
	2	3.61	0.928	0.640
	3	4.14	0.857	0.742
	4	4.17	0.802	0.814
Team-teaching climate (mission clarity)	1	4.07	0.906	0.798
	2	4.15	0.908	0.753
	3	4.08	1.032	0.778
Student role clarity	1	3.761	0.916	0.872
	2	3.85	0.911	0.904
	3	3.79	0.988	0.948
	4	3.80	1.011	0.919
Student role conflict	1	2.52	0.969	0.770
	2	2.72	0.938	0.746
	3	2.41	1.098	0.876
	4	2.46	1.045	0.863
Student satisfaction	1	3.24	1.200	0.929
	2	3.54	1.096	0.946
	3	3.51	1.145	0.965
	4	3.57	1.138	0.930
Student competency	1	3.91	0.925	0.931
	2	3.90	0.900	0.917
	3	3.93	0.906	0.941
	4	3.95	0.889	0.923

Note. All factor loadings are significant ($p<0.01$).

Measurement Model: Reliability and Validity

Table 2 shows that all constructs have Cronbach's alpha values above 0.84, exceeding the recommended cutoff of 0.70 (Nunnally, 1978). Cronbach's alpha estimates the lower bounds of measurement reliability. As an alternative to coefficient alpha in structural modelling, composite reliability is used (Peterson & Kim, 2013). The composite reliability is presented in Table 2, and the values range from 0.917 to 0.955. The reported results exceed the critical value, 0.84, signifying good construct reliability.

Table 2

Construct Cronbach Alpha and Composite Reliability

Item	Cronbach's alpha	Composite reliability
Team-teaching climate	0.949	0.955
Affiliation	0.911	0.937
Fairness	0.875	0.923
Innovation	0.879	0.917
Mission clarity	0.927	0.953
Student role clarity	0.931	0.951
Student role conflict	0.849	0.888
Student satisfaction	0.958	0.970
Student competency	0.946	0.961

Four tests confirm convergent and discriminant validity. First, the square roots of the average variance extracted for each construct (diagonal elements found in Table 3) exceed the cross-correlations with other constructs (Chin, 1998).

Table 3

Construct Correlations and Average Variance Extracted

Construct	Team-teaching climate	Student role clarity	Student role conflict	Student satisfaction	Student competency
Team-teaching climate	**0.788**				
Student role clarity	0.763	**0.911**			
Student role conflict	-0.310	-0.254	**0.815**		
Student satisfaction	0.715	0.686	-0.263	**0.942**	
Student competency	0.748	0.730	-0.308	0.753	**0.928**

Note. The diagonal elements (in bold) are square roots of average variance extracted (√AVE).

Second, principal constructs indicate higher construct-related variance than error variance, with all average variance extracted values above 0.60 (Hair et al., 1998). Third, computed correlations are beneath the 0.90 threshold, indicating constructs are distinct (Bagozzi et al., 1991). Finally,

Table 3 shows that each item loaded on its construct above the recommended 0.70 level (Chin et al., 2003) and was significant at the 0.01 level. These tests confirm convergent and discriminant validity.

To assess common method variance, given the use of single-source, self-reported data (Podsakoff et al., 2003), Harman's one-factor test was performed (Podsakoff & Organ, 1986). All measurement items were entered into a factor analysis using the Varimax rotation. The test showed no dominant factor, suggesting common method bias is unlikely.

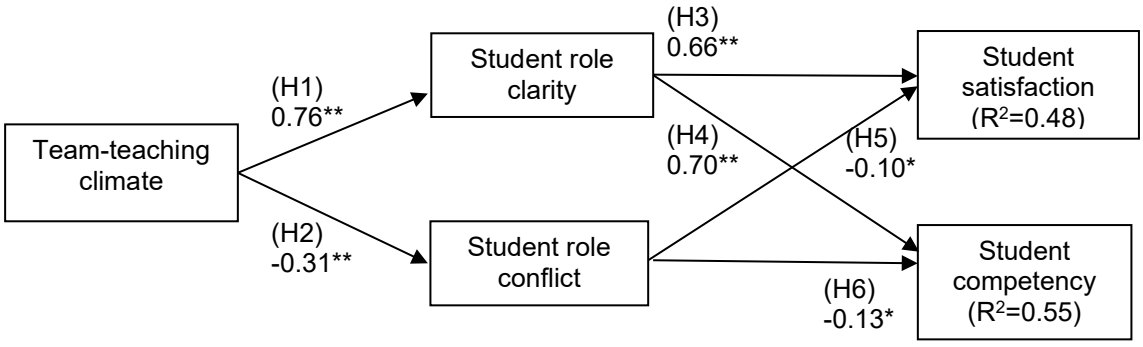
Structural Model Testing

Figure 2 presents the structural model results. All six hypotheses are supported. Team-teaching climate was positively related to role clarity (b=0.76, p<0.01) and negatively related to role conflict (b=-0.31, p<0.01). Thus, H1 and H2 were supported. Student role clarity positively affected student satisfaction (b=0.66, p<0.01) and student competency (b=0.70, p<0.01), supporting H3 and H4. Student role conflict negatively affected both student satisfaction (b=-0.10, p<0.05) and student competency (b=-0.13, p<0.05), supporting H5 and H6. The model explained 48% of the variance in student satisfaction and 55% in student competency.

Effect sizes (f^2) were examined to assess the practical relevance of the hypothesized relationships (see Table 4). Following Cohen's (1988) benchmarks (0.02 = small, 0.15 = medium, 0.35 = large), team-teaching climate showed a large effect on student role clarity, highlighting its strong influence on clarifying expectations. Its effect on student role conflict was medium and negative, indicating that a positive team-teaching climate reduced perceived role conflict. Student role clarity showed large effects on both satisfaction and competency, underscoring its central role in shaping positive outcomes. Student role conflict showed small negative effects on satisfaction and competency, suggesting that although statistically significant, their practical impact was limited relative to role clarity.

Figure 2

Model Testing Results



*Significant at 0.05 level; **Significant at .01 level

Table 4

Effect Sizes (f^2) for Structural Model Paths

Hypothesis	Structural path	f^2	Effect size interpretation
H1	Team-teaching climate → Student role clarity	0.58	Large
H2	Team-teaching climate → Student role conflict	0.18	Medium
H3	Student role clarity → Student satisfaction	0.44	Large
H4	Student role clarity → Student competency	0.52	Large
H5	Student role conflict → Student satisfaction	0.03	Small
H6	Student role conflict → Student competency	0.04	Small

Note. Effect size interpretations follow Cohen's (1988) guidelines (0.02 = small, 0.15 = medium, 0.35 = large).

To further interpret these findings, qualitative course evaluation comments were examined to illustrate how students experienced team-teaching climate, role clarity, and role conflict. The qualitative data provide contextual insight into the statistically significant relationships identified in the structural model by highlighting how instructor coordination, communication, and alignment shaped perceptions of clarity, satisfaction, and competency. Together, the quantitative and qualitative findings offer a more comprehensive understanding of the student experience in team-taught courses.

Qualitative Analysis

Although this study primarily uses quantitative methods, qualitative examples are included to provide richer understanding, and the qualitative coding process is outlined below. Quotes were drawn from course evaluations, where open-ended questions allowed students to share experiences and impressions of team teaching. These responses were analysed using a deductive thematic analysis approach (Braun & Clarke, 2006), with themes derived from the six hypotheses. Consistent with Braun and Clarke (2021), the analysis was designed to avoid common methodological pitfalls. Specifically, the analysis addressed issues such as superficial theme development, unclear analytic procedures, and weak alignment between data, coding, and theoretical claims. These issues were addressed through a clearly specified deductive coding framework, independent coding, and consensus-based resolution. Deductive thematic analysis is appropriate when theoretical constructs or hypotheses guide coding (Fereday & Muir-Cochrane, 2006).

Accordingly, qualitative comments were coded using the following hypothesis-aligned categories:

H1: Team-teaching climate → Student role clarity.

H2: Team-teaching climate → Student role conflict.

H3: Student role clarity → Student satisfaction.

H4: Student role clarity → Student competency.

H5: Student role conflict → Student satisfaction.

H6: Student role conflict → Student competency.

This approach mapped the qualitative data to the hypotheses, enhancing interpretation of the quantitative results and ensuring alignment with the study's objectives. Tone (positive or negative) was noted for each hypothesis-aligned comment, providing additional insight.

Qualitative Coding Overview

The qualitative data were analysed using a deductive thematic approach guided by the study's theoretical model and six hypotheses. Student course evaluation comments were coded for references to team-teaching climate, role clarity, role conflict, and their perceived impacts on satisfaction and competency. Two independent reviewers coded the data using a coding framework aligned with the hypothesised relationships. Inter-rater reliability was assessed using Cohen's Kappa, followed by consensus-based discussions to resolve discrepancies. Additional details on the coding process and reliability assessment are provided below.

Coding process and inter-rater reliability

Two independent reviewers with expertise in higher education and team teaching coded the data, aligning comments with the six hypotheses. To assess coding reliability, Cohen's Kappa (Cohen, 1960) was calculated, yielding 0.80. This indicates substantial agreement (Landis & Koch, 1977) between reviewers.

Discrepancies were then resolved through consensus-based discussions. As Campbell et al. (2013) note, "Intercoder reliability requires that two or more equally capable coders operating in isolation from each other select the same code for the same unit of text," while "intercoder agreement requires that two or more coders are able to reconcile through discussion whatever coding discrepancies they may have" (p. 297). This dual approach—measuring reliability and building consensus—ensured both statistical rigour and qualitative trustworthiness. As O'Connor and Joffe (2020) note, consensus-based discussions are widely accepted in thematic analysis to resolve disagreements and enhance the rigour and validity of qualitative research.

Although quotes appear in each hypothesis section, the following examples show how comments were coded for three hypotheses:

- H1 (Team-teaching climate → Role clarity): "The course was well-structured, and the roles of each instructor were clear." (Positive)
- H3 (Role clarity → Student satisfaction): "I knew exactly what was expected of me." (Positive)
- H6 (Role conflict → Student competency): "I felt less confident in my abilities due to the mixed messages." (Negative)

Two hypotheses examine how team-teaching climate influences student role clarity and conflict.

Team-teaching climate's impact on student role clarity (H1)

Consistent with the quantitative findings, students described how clear instructor coordination and shared expectations improved their understanding of course requirements. Supporting comments include:

- “The organization and technology is on point! I have never taken a more organized class!”
- “I like how this course was done as a course between the two instructors. It was very well planned too.”
- “The course was well-structured, and the roles of each instructor were clear.”
- “I would not change this course. As my first course I enjoyed the chance to learn two different lecture types and study types among my two professors.”

In contrast, unfavourable comments indicate that disorganisation and unclear expectations reduced role clarity:

- “Never make it team-taught- so unorganized, was not the same teaching patterns.”
- “The course is very unorganized and unnecessary workload. Not a good idea and a strain on students compared to those that took regular computer course.”
- “Having three different professors teach in class was confusing at times.”
- “Three instructors can only work when the professors communicate which was not the case for this course.”

Team-teaching climate’s impact on student role conflict (H2)

In line with the structural model results, students described confusion and frustration when instructors appeared misaligned or communicated inconsistently.

- “Sometimes it felt like the instructors were not on the same page.”
- “The class was terrible. Having 3 different professors with 3 different teaching styles made the class extremely unorganized. I could have done so much better in this class if it weren’t set up the way it was. I was very disappointed with this class. Would not recommend it to anyone.”

Favourable comments suggest that well-guided students experience lower role conflict. In contrast, perceptions of a negative team-teaching climate contributed to confusion and dissatisfaction. Students frequently described inconsistent teaching styles and poor instructor coordination as harmful to their learning because they created role conflict.

Two hypotheses examine student role clarity and its influence on satisfaction and competency.

Student role clarity’s impact on students’ satisfaction (H3)

Supporting the quantitative findings, students who reported clear expectations also expressed satisfaction, noting that “I knew exactly what was expected of me.” These responses reflect satisfaction associated with a positive team-teaching climate.

No unfavourable comments aligned with Hypothesis 3 (H3). All comments linking role clarity and satisfaction were favourable.

Student role clarity’s impact on students’ competency (H4)

In line with the quantitative results, students linked clear expectations and instructor coordination to greater confidence in completing course tasks. No unfavourable comments aligned with Hypothesis 4 (H4), and students consistently associated role clarity with competency. All feedback was favourable, signalling effective instructor communication, clear course structure,

and stronger perceived competency when roles were clear. For instance, one student stated, “The clarity of instruction helped me feel more competent in the subject.”

Two hypotheses examine student role conflict and its influence on satisfaction and competency.

Student role conflict’s impact on student satisfaction (H5)

Consistent with the quantitative findings, students experiencing role conflict described frustration and dissatisfaction due to unclear or conflicting guidance. Specifically, the results show that lower role conflict is associated with higher satisfaction. These findings are further highlighted in students’ feedback, which aligns with H5. For example, one student states: “These instructors are very good at teaching the information … [and] are willing to help if one is confused or has a question.” Conversely, another student claims, “Conflicting advice from different instructors was confusing.” Students’ roles become uncertain when instructors in a team-teaching course use different approaches to communicating expectations, such as relying on students to manage assignment schedules independently versus providing frequent reminders, which can create expectation gaps and reduce satisfaction.

Student role conflict’s impact on students’ perceived competency (H6)

Supporting the quantitative findings, comments showed how role conflict undermined students’ confidence in their ability to perform effectively. Students reported that conflicting information, inconsistent teaching styles, and misalignment between instruction and assignments lowered perceived competency. Although no favourable comments aligned with Hypothesis 6 (H6), unfavourable feedback showed how difficulties managing course requirements across multiple instructors reduced students’ confidence. This pattern is illustrated by one student who stated, “I felt less confident in my abilities due to the mixed messages.” Overall, comments suggest that role conflict arising from inconsistent expectations and coordination lowered perceived competency.

Discussion

The discussion interprets the findings in relation to the study’s research questions on how team-teaching climate influences students’ role perceptions and, in turn, their perceived competency and satisfaction. Specifically, the study examines team-teaching climate from students’ perspectives and how role conflict and role clarity shape learning outcomes. Team-teaching climate is conceptualised based on team climate as defined by Xue et al. (2005). The findings indicate that students experiencing a positive team-teaching climate report lower levels of student role conflict and higher role clarity. Further, student role conflict negatively and clarity positively influence student satisfaction and competency. These results are consistent with Self-Efficacy Theory (Bandura, 1997), which states that role clarity should be positively related to perceptions of competency. Overall, the quantitative findings and qualitative commentary provide strong evidence that students’ perception of team-teaching climate and how this perception affects students’ role clarity and role conflict directly impact students’ learning experience.

These findings highlight the need for future research. In particular, the relatively high construct factor means (ranging from 3.61 in innovation to 4.26 in fairness) for the perceived team-teaching climate indicate that students generally regard the team-teaching climate positively. However, the high variance in student responses to team-teaching climate (standard deviations ranging from

0.802 in innovation to 1.032 in mission clarity) suggests that some students perceived the team climate less favourably. Such findings highlight the importance of conducting further research to understand what factors influence perceived team-teaching climate to account for variance in student experiences (Killingsworth & Xue, 2015). Importantly, the qualitative findings reinforce and contextualise the quantitative results by demonstrating how statistically significant relationships manifested in students lived experiences, thereby strengthening the study's interpretive validity. The qualitative findings not only contextualise but also substantively deepen understanding of how role clarity and conflict are experienced by students in team-taught environments.

Practical Implications

From a practical standpoint, this study provides evidence-based guidance for program leaders and teaching teams designing and managing effective team-taught courses. Based on the results of this study, there are several implications for higher education practice. First, prior to administrators scheduling courses in a team-teaching setting, faculty training should reinforce communication teaching skills since these competencies can improve the team-teaching climate. Second, faculty should be encouraged to collaborate and coordinate closely with each other so that pedagogical innovation can thrive while ensuring students benefit from diverse teaching styles and perspectives. Third, before the course begins, teaching teams should carefully consider the alignment of course content (e.g., content mapping) as well as the course assessment methods to reduce challenges with content delivery and grading consistency. This alignment process should also incorporate periodic student feedback mechanisms, such as mid-semester surveys or brief in-class check-ins, to proactively identify and resolve inconsistencies, ensuring a cohesive student learning experience. Across these initiatives, attention to students' perceptions and consistency of instructional messaging is central to team-teaching effectiveness.

Theoretical Implications

This study makes two primary contributions to the team-teaching literature by addressing critical gaps in empirical research on student learning in higher education. The first gap stems from the need to conduct empirical studies specifically in the higher education context to investigate whether the abundant research in K-12 setting (e.g., Carpenter et al., 2007; Murawski & Swanson, 2001) applies to team-teaching in higher education. The second gap involves examining team teaching from the student perspective rather than focusing only on instructors' behaviours (e.g., Decuyper et al., 2023; Kaufman & Brooks, 1996; Sagliano et al., 1998) or the instructors' perceptions of team-teaching process or outcome perceptions (e.g., Wöllner & Ginsborg, 2011; Yopp et al., 2014). Many researchers emphasise the significance of this gap in the literature, stressing the overarching goal of education as supporting student learning (Gono & de Moraes, 2023; Killingsworth & Xue, 2015; Neumann et al., 2008; Wöllner & Ginsborg, 2011). This study helps fill these gaps by examining the impact of team-teaching climate on students' perception of their role conflict and role clarity and how these perceptions influence their perceived competency and satisfaction in the higher education setting. The findings extend existing knowledge of student learning outcomes—specifically satisfaction and competency—within higher education team-teaching contexts from the student perspective. Furthermore, these findings provide a theoretical framework to inform strategies for enhancing team-teaching environments and improving student outcomes. By empirically linking team-teaching climate to student role clarity and role conflict,

and in turn to satisfaction and competency, this study extends role stress and self-efficacy perspectives into higher education team-teaching contexts. In doing so, this study repositions team-teaching climate as a central explanatory mechanism linking instructional coordination to student role processes and learning outcomes in higher education.

Beyond the specific institutional context studied, these findings have broader relevance across diverse higher education settings. Team teaching and collaborative instructional models are increasingly used to address interdisciplinary curricula, large enrolments, resource constraints, and pedagogical innovation. Recent research describes team teaching as a collaborative approach in which instructors share responsibility, learn from one another, and improve their teaching across a range of higher education settings (Frelin et al., 2025; Sinnayah et al., 2023). Empirical studies of co-teaching demonstrate its application across multiple disciplines, including professional programmes, teacher education, and applied fields, highlighting its relevance beyond any single national or institutional context (Richter et al., 2025; Zach & Avugos, 2024). Across these varied contexts, the transferability of role-related processes is particularly salient. Research on collaboration in team teaching highlights coordination, shared expectations, and mutual agency as core processes underpinning effective team-teaching practice (Decuyper et al., 2023; Mavropalias et al., 2023). Professional development interventions aimed at strengthening co-teaching and collaboration skills suggest that institutional support plays a critical role in fostering effective collaborative instructional practices (Alsudairy, 2024). While structural conditions, cultural norms, and instructional practices vary globally, underlying role processes such as clarity of expectations, consistency of instructional messages, and instructor coordination remain fundamental to student learning. These processes operate across team-taught courses, including interdisciplinary, international, and resource-constrained environments, supporting the broader applicability.

Limitations and Future Research

Several limitations of this study should be noted. First, the study focuses only on student perceptions of team-teaching member dynamics and their impact on perceived competency and satisfaction. This study does not consider student factors like work effort or motivation, which may influence perceived competency and satisfaction. Second, the study relies on student perceptions and does not include an objective competency-based measure, such as course grade. Incorporating an objective competency measure may alter the degree of explained variance. Third, this study is limited to a single university and one course. Although students in the study majored in various disciplines across the university, future research should examine multiple universities across a broader range of disciplines and diverse student demographics to improve generalizability and extend these findings. Fourth, the study focuses on short-term outcomes only. Longitudinal research could investigate the sustained impact of team-taught courses on student learning outcomes. Fifth, although the deductive thematic analysis supports alignment with the study's hypotheses and quantitative findings, it may limit the identification of unexpected or emergent themes. An inductive approach could be used in future studies to identify novel insights arising from open-ended qualitative data. Finally, examining multiple team-taught courses could provide insight into faculty perspectives and their alignment with students' views on the impact of team teaching on role conflict and role clarity.

Future research should incorporate student-level factors and instructor team dynamics when examining perceived competency and satisfaction. Such research would provide a richer basis for developing instructional strategies that leverage the collective knowledge of teaching teams and support a broader range of students. For example, while student role conflict may arise from differing instructor expectations, prior research suggests that improved and sustained communication can reduce role conflict (Tidd & Friedman, 2002).

Conclusion

This study examines students' perceptions of team-teaching climate, its impact on role conflict and role clarity, and how these factors influence perceived competency and satisfaction. The findings underscore the importance of a well-coordinated, coherent team-teaching approach in reducing role ambiguity and enhancing students' understanding of their roles. Clear communication and instructional consistency among instructors are essential for fostering a positive learning environment, reducing role conflict, and enhancing satisfaction and perceived competency. Furthermore, the findings highlight the significance of role clarity and role conflict in shaping the learning outcomes of competency and satisfaction. Together, these findings clarify how team-teaching climate operates as a mechanism shaping student role perceptions and learning outcomes in higher education.

The implications of these findings for policy and practice are multifaceted. First, educational institutions should establish guidelines and professional development programs to help instructors develop effective team-teaching strategies. These programs should emphasise alignment in teaching methods, expectations, and communication to ensure consistency across team members. Second, administrators should encourage collaborative planning sessions among team instructors before and during the course to address potential inconsistencies. Finally, policy initiatives could require periodic student feedback to assess team-teaching effectiveness, enabling instructors to identify and address sources of role conflict promptly. By implementing these practices, institutions can foster a coherent team-teaching climate that minimises confusion and enhances role clarity, satisfaction, and competency. These implications are particularly relevant for institutions across diverse higher education contexts, including international, interdisciplinary, and resource-constrained settings, where effective coordination among multiple instructors is essential to supporting student learning.

Thus, the alignment of teaching methods and expectations from students' perspectives is critical for improved outcomes in team-taught courses. Understanding how team-teaching climate shapes perceptions of these factors can help instructors design strategies that improve task clarity and reduce confusion arising from differing expectations in a team-taught course. Finally, these findings extend theoretical understanding by clarifying links between team dynamics, role stressors, and student outcomes.

Acknowledgements

The authors disclose that they have no actual or perceived conflicts of interest. The authors disclose that they have not received any funding for this manuscript beyond resourcing for academic time at their respective university. The authors confirm that they have met the ethical standards expected as per Purvis & Crawford (2024). The lead author has used ChatGPT 5.2 after the manuscript was fully drafted to support editorial refinement, specifically to simplify

complex sentences and improve clarity of expression, consistent with the principles outlined in Crawford et al. (2026). The authors list the following CRediT contributions: **Killingsworth**: Conceptualization, Methodology, Investigation, Data curation, Writing - Original draft preparation. **Xue**: Conceptualisation, Methodology, Data curation, Writing - Original draft preparation, Formal analysis. **Reed**: Investigation, Writing, Data curation, Editing. **Eseryel**: Data curation, Writing - Reviewing and Editing. **Johnson-Synder**: Writing - Reviewing and Editing.

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