



Bridging Classrooms and Communities: How Community Service Mastery Climate Catalyzes Academic Self-Efficacy in Vocational Education

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Abstract. This study investigates how civic action attitudes, academic mastery climate, and community service mastery climate jointly predict academic and community-service self-efficacy among vocational college students in China (N = 863). Hierarchical regression analyses indicate that civic action attitudes strongly and positively predict both academic and community service self-efficacy. Academic mastery climate and community service mastery climate each positively predict academic self-efficacy; community service mastery climate additionally predicts community service self-efficacy. Importantly, civic attitudes remain a robust predictor after mastery climates are introduced. The results suggest that deliberately structured mastery climates in community service act as an important bridge from real-world civic engagement to greater academic confidence, with implications for integrating service-learning and mastery-oriented pedagogy in vocational education.

Keywords: Community Service Mastery Climate, Academic Self-Efficacy, Vocational Education, Civic Engagement

1 Introduction

In recent decades, vocational education has increasingly been expected to cultivate graduates who are not only technically competent but also socially responsible and adaptable to complex real-world environments. Within this context, community service and service-learning initiatives have gained prominence as high-impact pedagogical approaches that connect classroom learning with authentic social engagement (Eyler & Giles, 1999; Bringle & Hatcher, 1996)^[7]. A growing body of empirical research indicates that well-designed service experiences can enhance students' academic motivation, civic responsibility, and personal development (Celio et al., 2011; Yorio & Ye,

2012; Salam et al., 2019)^[4,18,14]. However, the psychological mechanisms through which community engagement translates into academic benefits remain insufficiently specified, particularly in vocational education settings and non-Western contexts.

One construct that may help explain this linkage is academic self-efficacy. Rooted in social cognitive theory, self-efficacy refers to individuals' beliefs about their capability to organize and execute actions required to attain designated performance levels (Bandura, 1997)^[2]. Extensive research has demonstrated that students with higher academic self-efficacy exhibit greater persistence, deeper engagement, and stronger academic achievement (Zimmerman, 2000; Schunk & Pajares, 2002)^[19,15]. Within experiential learning environments, mastery experiences are considered the most influential source of efficacy development (Bandura, 1997)^[2]. Prior studies have shown that participation in service-learning courses is associated with gains in personal efficacy and academic confidence (Simons & Cleary, 2006; Reeb et al., 2010)^[16,13]. Nevertheless, less is known about how specific features of the learning environment shape these efficacy beliefs among vocational students.

Achievement Goal Theory provides an additional explanatory lens. Mastery climates—learning environments that emphasize improvement, effort, and understanding—have consistently been linked to adaptive motivational outcomes and stronger competence beliefs (Ames, 1992; Midgley et al., 2000; Urdan & Kaplan, 2020)^[1,11,17]. While mastery climate has been widely studied in classroom contexts, relatively little research has examined whether similar motivational structures within community service environments exert comparable or even stronger effects. This gap is particularly salient in vocational education, where applied learning experiences frequently blur the boundary between classroom and community contexts.

Accordingly, the present study investigates how civic action attitudes, academic mastery climate, and community service mastery climate jointly predict academic and community service self-efficacy among vocational college students in China. By integrating social cognitive theory with Achievement Goal Theory in a vocational service-learning context, this study seeks to clarify the individual and contextual pathways through which community engagement may strengthen academic confidence.

2 Literature Review

2.1 Civic Action Attitudes and Self-Efficacy

Civic action attitudes reflect students' beliefs regarding the importance of community involvement and their perceived responsibility to contribute to society. Prior research suggests that students who hold stronger civic orientations are more likely to engage in prosocial behavior and demonstrate higher levels of personal agency (Moely et al., 2002; Doolittle & Faul, 2013)^[12,6]. From a social cognitive perspective, such attitudes may shape how students interpret and internalize their service experiences.

Bandura (1997)^[2] argued that efficacy beliefs are constructed primarily through mastery experiences and cognitive appraisal processes. Students who value civic participation may invest greater effort in service activities and interpret successful participation as evidence of competence. Empirical studies support this mechanism. For

instance, Simons and Cleary (2006)^[16] found that service-learning participation was associated with significant gains in students' personal and social efficacy. Similarly, Reeb et al. (2010)^[13] reported that meaningful community engagement predicted increases in students' academic self-efficacy through enhanced sense of purpose. Meta-analytic syntheses further confirm that service learning is positively associated with a wide range of cognitive and affective outcomes, including self-efficacy (Celio et al., 2011; Yorio & Ye, 2012; Salam et al., 2019)^[4,18,14].

However, much of the existing literature operationalizes service exposure dichotomously (participation vs. non-participation) and pays insufficient attention to students' underlying civic dispositions. The present study extends prior work by positioning civic action attitudes as a central motivational predictor of efficacy beliefs in vocational education.

2.2 Mastery Climate in Academic Contexts

Achievement Goal Theory distinguishes mastery-oriented environments from performance-oriented environments based on the goals emphasized within the learning context (Ames, 1992; Elliot & McGregor, 2001)^[1,7]. In mastery climates, teachers emphasize effort, improvement, and understanding rather than competition and normative comparison. Such environments have been consistently associated with adaptive motivational patterns, including higher intrinsic motivation, persistence, and self-efficacy (Midgley et al., 2000; Linnenbrink-Garcia et al., 2011)^[11,10].

Research using the Patterns of Adaptive Learning Scales (PALS) has demonstrated that students who perceive stronger classroom mastery climate report higher academic efficacy and more positive learning behaviors (Midgley et al., 2000)^[11]. These findings are particularly relevant in vocational education, where students often enter with heterogeneous academic preparation and may benefit disproportionately from supportive mastery-oriented instruction. Nevertheless, most mastery climate research has focused exclusively on classroom settings, leaving open the question of whether mastery principles extend to community-based learning environments.

2.3 Community Service Mastery Climate

Service-learning scholars increasingly emphasize that the developmental impact of community engagement depends heavily on program quality and pedagogical structure. Bringle and Hatcher (1996)^[3] argued that effective service learning requires intentional integration of service activities with academic objectives and structured reflection. Eyler and Giles (1999)^[8] further demonstrated that high-quality reflection and meaningful community partnerships are critical drivers of student learning outcomes.

From a motivational standpoint, these program features closely resemble the components of a mastery climate. When community service environments emphasize skill development, provide formative feedback, and support collaborative problem solving, they may function as powerful mastery contexts that foster efficacy development. Experiential learning theory similarly suggests that authentic experiences combined

with reflection promote deeper competence beliefs and facilitate transfer to academic domains (Dewey, 1938; Kolb, 1984)^[5,9].

Despite these theoretical connections, empirical research explicitly examining community service mastery climate remains limited, particularly in vocational and non-Western contexts. The present study addresses this gap by simultaneously modeling academic and service mastery climates to examine their relative and combined effects on students' efficacy beliefs.

3 Theoretical Framework

3.1 Bandura's Self-Efficacy Theory

Bandura identifies four sources of self-efficacy: mastery experiences, vicarious learning, verbal persuasion, and emotional states. Within this framework: Community service experiences function as mastery experiences, providing students with concrete evidence of their capabilities through real-world problem-solving activities (e.g., organizing art workshops). Civic action attitudes serve as a form of verbal persuasion, internalizing societal values that motivate persistence in both academic and service-related tasks.

3.2 Achievement Goal Theory

Ames distinguishes between mastery goals (focused on learning) and performance goals (focused on outcomes). This study extends the theory by proposing two context-specific mastery climates: Academic Mastery Climate: Classroom strategies such as formative assessments and peer collaboration reduce anxiety and foster intrinsic motivation among students. Community Service Mastery Climate: Mentorship programs and structured reflection sessions in service settings enhance skill transfer, bridging theoretical knowledge with civic action.

3.3 Experiential Learning Theory

Dewey emphasize learning through reflection on experience. Community service provides a cyclical process where: Concrete Experience: Students actively engage in service projects (e.g., art programs for underserved communities). Reflective Observation: Guided reflection sessions enable students to connect service outcomes with academic concepts. Abstract Conceptualization: Students develop theories regarding societal issues (e.g., inequality). Active Experimentation: Revised strategies are implemented in subsequent projects, reinforcing self-efficacy.

4 Research Questions

RQ1. How are civic action attitudes and domain-specific mastery climates (academic vs. community service) related to academic and community service self-efficacy?

RQ2. Which variables are the strongest predictors of academic self-efficacy and community service self-efficacy?

We hypothesize that civic action attitudes and academic mastery climate will predict both forms of self-efficacy, and that community service mastery climate will have a particularly strong effect on community service self-efficacy and an incremental effect on academic self-efficacy.

5 Methodology

5.1 Participants

A total of 863 valid responses were obtained from students enrolled in art-related majors at a vocational college in China. The sample included 256 males (29.7%) and 607 females (70.3%); mean age = 19.79 years. Academic years: first year 53.8%, second year 38.7%, third year 7.5%. Sixty percent reported some prior community service participation; most had participated once or twice per semester.

5.2 Instruments

The survey (Chinese) comprised six sections: demographics; classroom learning environment (academic mastery climate + performance approach/avoidance goals); academic self-efficacy (5 items); civic constructs including civic action attitudes (7 items) and related civic skills/opinions; community service self-efficacy (10 items); and community service experiences environment (community service mastery climate + performance approach/avoidance in service). Items used a 5-point Likert scale (1 = strongly disagree ... 5 = strongly agree). Translation followed Brislin’s back-translation and the instrument was piloted with 115 students.

6 Results

Table 1. List of measurement instruments

| Variables | Number of items | Source | Scales | Cronbach’s alpha |
|-----------------------------------|-----------------|----------------------|----------------------|------------------|
| Civic Issues | | | | |
| Civic Action Attitudes | 7 | Moely,2002 | | 0.974 |
| Academic Mastery Climate | 6 | Midgley et al., 2000 | 5 point Likert Scale | 0.920 |
| Community Service Mastery Climate | 6 | Midgley et al., 2000 | | 0.944 |
| Academic Self-efficacy | 5 | Nielsen et al., 2018 | | 0.952 |
| Community Service Self-efficacy | 10 | Simons,2006 | | 0.983 |

p* < .05, *p* < .01

As reported in Table 1, all study variables demonstrated excellent internal consistency reliability. Cronbach’s alpha coefficients ranged from .920 to .983, substantially ex-

ceeding the commonly accepted threshold of .70. In particular, Civic Action Attitudes ($\alpha = .974$) and Community Service Self-efficacy ($\alpha = .983$) exhibited exceptionally high reliability, indicating that the items within each scale measured highly coherent constructs. The strong reliability evidence supports the suitability of these measures for subsequent correlational and regression analyses.

Table 2. Bivariate Correlations: Relationship among Variables Prior to Community Service (n = 863)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------------------------------|---|--------|--------|---------|---------|---------|---------|---------|---------|
| 1. Gender | | -.083* | -.086* | .008 | .025 | .031 | .039 | .031 | .028 |
| 2. Age | | | .215** | -.008 | -.031 | -.011 | .002 | -.026 | -.009 |
| 3. Academic year of study | | | | -.106** | -.168** | -.200** | -.171** | -.191** | -.196** |
| 4. Major | | | | | .013 | .080* | .015 | .001 | .012 |
| 5. Civic Action Attitudes | | | | | | .708** | .813** | .798** | .866** |
| 6. Academic Mastery Climate | | | | | | | .731** | .784** | .687** |
| 7. Community Service Mastery Climate | | | | | | | | .787** | .891** |
| 8. Academic Self-efficacy | | | | | | | | | .792** |
| 9. Community Service Self-efficacy | | | | | | | | | |

Table 2 presents the Pearson correlation coefficients among demographic variables, civic action attitudes, mastery climate variables, and the two self-efficacy outcomes. Overall, the correlation matrix reveals a pattern that is theoretically coherent and statistically robust.

Civic action attitudes were strongly and positively associated with both academic self-efficacy and community service self-efficacy, suggesting that students who reported stronger civic responsibility beliefs also tended to express higher confidence in both academic and service-related tasks. Similarly, both academic mastery climate and community service mastery climate were positively correlated with the two self-efficacy outcomes. Academic mastery climate showed a particularly strong association with academic self-efficacy, whereas community service mastery climate exhibited an exceptionally strong relationship with community service self-efficacy, indicating substantial domain alignment.

The two mastery climate variables were themselves highly correlated ($r \approx .73$), indicating that students who perceived mastery-oriented structures in classroom settings were also likely to perceive such structures in community service contexts. However, the correlation magnitude remained below commonly accepted multicollinearity thresholds, supporting the decision to include both variables simultaneously in the regression models. Among demographic variables, academic year of study showed small but statistically significant negative correlations with both self-efficacy outcomes, suggesting a slight decline in reported confidence among students in later years.

The hierarchical regression results predicting academic self-efficacy are presented in Table 3. In Model 1, demographic variables accounted for a small but statistically significant proportion of variance ($R^2 = .037$). Academic year of study emerged as a significant negative predictor ($\beta = -.195, p < .01$), indicating that students in higher

years reported slightly lower academic self-efficacy, whereas gender, age, and major were not significant predictors.

Table 3. Results of hierarchical regression analysis: Predictors of Academic Self-efficacy (n = 863)

| Influence variables | Academic Self-efficacy | | | |
|--------------------------------------|------------------------|---------|---------|---------|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| 1. Demography Background | | | | |
| a. Gender (1= Male; 2 = Female) | .016 | .008 | .004 | .000 |
| b. Age | .017 | .012 | -.001 | -.008 |
| c. Academic year of study | -.195** | -.063** | -.026 | -.022 |
| d. Major | -.020 | -.016 | -.043* | -.039* |
| 2. Civic Action Attitudes | | | | |
| | | .788** | .482** | .342** |
| 3. Academic Mastery Climate | | | | |
| | | | .441** | .366** |
| 4. Community Service Mastery Climate | | | | |
| | | | | .239** |
| R2 | .037 | .641 | .736 | .752 |

* $p < .05$, ** $p < .01$

Note. Only standardized coefficients are reported.

The introduction of civic action attitudes in Model 2 produced a substantial increase in explained variance ($R^2 = .641$). Civic action attitudes emerged as a very strong positive predictor ($\beta = .788$, $p < .01$), indicating that students with stronger civic orientations tended to report markedly higher academic confidence. This finding underscores the cross-domain motivational relevance of civic dispositions.

When academic mastery climate was added in Model 3, the explained variance increased further to $R^2 = .736$. Academic mastery climate was a strong positive predictor ($\beta = .441$, $p < .01$), while civic action attitudes remained significant but reduced in magnitude ($\beta = .482$). This pattern suggests that both individual civic orientation and classroom mastery structure independently contribute to students' academic self-efficacy.

The final model incorporated community service mastery climate and yielded an overall R^2 of .752, indicating additional explanatory power. Community service mastery climate significantly predicted academic self-efficacy ($\beta = .239$, $p < .01$) even after controlling for classroom mastery climate and civic attitudes. Academic mastery climate ($\beta = .366$) and civic action attitudes ($\beta = .342$) both remained significant. This pattern provides evidence of cross-context transfer, suggesting that mastery-oriented experiences in community service settings contribute uniquely to students' academic confidence.

Table 4 presents the hierarchical regression results for community service self-efficacy. In Model 1, demographic variables explained a small proportion of variance ($R^2 = .040$), with academic year again emerging as a modest negative predictor ($\beta = -.204$, $p < .01$). Other demographic variables were not significant. The addition of civic action attitudes in Model 2 resulted in a dramatic increase in explained variance ($R^2 = .754$). Civic action attitudes emerged as an extremely strong predictor (β

= .857, $p < .01$), indicating that civic disposition is closely aligned with confidence in community service contexts. When academic mastery climate was introduced in Model 3, the increase in explained variance was modest ($R^2 = .764$). Academic mastery climate showed a small but significant positive effect ($\beta = .142, p < .01$), whereas civic action attitudes remained the dominant predictor. This suggests that classroom mastery structures play a secondary role in shaping service-related efficacy beliefs. The inclusion of community service mastery climate in Model 4 substantially improved model fit, raising explained variance to $R^2 = .855$. Community service mastery climate emerged as a very strong positive predictor ($\beta = .560, p < .01$). Notably, the effect of academic mastery climate dropped to non-significance, whereas civic action attitudes remained significant but attenuated. This pattern indicates clear domain specificity: efficacy beliefs in community service are primarily shaped by mastery experiences within the service context itself.

Table 4. Results of hierarchical regression analysis: Predictors of Community Service Self-efficacy (n = 863)

| Influence variables | Community Service Self-efficacy | | | |
|--------------------------------------|---------------------------------|---------|---------|---------|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| 1. Demography Background | | | | |
| Gender (1 = Male; 2 = Female) | .013 | .004 | .003 | -.006 |
| b. Age | .036 | .031 | -.026 | .010 |
| c. Academic year of study | -.204** | -.059** | -.047** | -.038** |
| d. Major | -.009 | -.005 | -.014 | -.003* |
| 2. Civic Action Attitudes | | | | |
| | | .857** | .759** | -.428** |
| 3. Academic Mastery Climate | | | | |
| | | | .142** | -.032 |
| 4. Community Service Mastery Climate | | | | |
| | | | | .560 |
| R ² | .040 | .754 | .764 | .855 |

* $p < .05$, ** $p < .01$

Note. Only standardized coefficients are reported.

Taken together, the results reveal a consistent and theoretically meaningful pattern. Civic action attitudes represent the strongest individual-level predictor of both academic and community service self-efficacy. Academic mastery climate primarily supports academic self-efficacy, whereas community service mastery climate plays a dual role by strongly predicting community service self-efficacy and additionally contributing to academic self-efficacy. These findings support the proposition that mastery-oriented community engagement functions as an important bridge linking civic development and academic confidence in vocational education.

7 Discussion

Despite the meaningful associations identified in this study, several methodological considerations warrant careful attention. First, the present research relies primarily on self-reported perceptual measures, which may introduce perceptual bias and inflate the

observed relationships among community service mastery climate and academic self-efficacy. Although prior research suggests that students' subjective perceptions are theoretically meaningful predictors of motivational outcomes, the use of a single-source, cross-sectional design raises the possibility of common method variance.

Specifically, students who generally hold more positive academic self-beliefs may also be more likely to perceive their learning and service environments favorably, thereby potentially strengthening the observed associations. While the statistical patterns observed in this study align with established motivational theory, the cross-sectional perceptual design limits the extent to which directional or causal inferences can be confidently drawn. Future research would benefit from incorporating multi-source or temporally separated measurements to mitigate this concern.

One promising direction involves adopting a two-stage or longitudinal measurement design. For example, researchers could assess students' perceptions of the community service mastery climate at the beginning of the academic term and measure academic self-efficacy at a later time point, such as the end of the semester. Such temporal separation would help reduce same-source bias and provide stronger evidence regarding the developmental influence of mastery-oriented service environments on students' efficacy beliefs. Moreover, multi-wave designs would allow scholars to examine potential reciprocal relationships and growth trajectories that cannot be captured in cross-sectional frameworks.

In addition, future studies could strengthen methodological rigor by incorporating complementary data sources, such as teacher evaluations, behavioral indicators of engagement, or objective academic performance measures. Triangulating perceptual data with more behaviorally anchored indicators would further clarify whether the observed relationships reflect genuine developmental processes or are partially attributable to shared method variance.

Notwithstanding these limitations, the current findings still offer valuable preliminary evidence regarding the motivational significance of community service mastery climates in vocational education contexts. The results are theoretically consistent and practically meaningful, while also pointing to important avenues for more temporally sensitive and methodologically diversified research designs in future investigations.

8 Conclusion

This study provides robust empirical evidence that community service mastery climate functions as a critical bridge linking civic engagement with academic self-efficacy in vocational education. Across a large sample of vocational students, civic action attitudes emerged as the strongest individual predictor of both academic and service-related confidence, while mastery-oriented environments demonstrated meaningful contextual effects. Academic mastery climate primarily supported academic self-efficacy, whereas community service mastery climate played a dual and particularly influential role by strongly predicting community service self-efficacy and additionally enhancing academic self-efficacy.

The findings carry important implications for both theory and practice. Theoretically, the study extends Self-Efficacy Theory (Bandura, 1997)^[2] and Achievement Goal Theory (Ames, 1992; Midgley et al., 2000)^[1,11] into vocational service-learning contexts and provides evidence of cross-domain efficacy transfer under mastery-oriented conditions. Practically, the results suggest that vocational educators should reconceptualize community service as a strategically designed learning environment rather than merely an experiential add-on. Programs that emphasize continuous improvement, formative feedback, collaborative problem solving, and structured reflection are especially likely to yield meaningful gains in students' confidence and developmental outcomes.

In an era in which vocational education is increasingly expected to cultivate adaptable and socially responsible graduates, the intentional alignment of classroom and community mastery climates represents a promising pathway. By deliberately designing mastery-oriented service-learning ecosystems, vocational institutions can more effectively bridge classrooms and communities, thereby strengthening students' academic resilience, civic competence, and long-term professional readiness.

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