

Flipped Classroom Strategies and Self-Efficacy of Elementary Education Students

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Date received: July 25, 2025

Date revised: September 16, 2025

Date accepted: September 26, 2025

Originality: 99%

Grammarly Score: 99%

Similarity: 1%

Recommended citation:

Luna, S. K. (2025). Flipped classroom strategies and self-efficacy of elementary education students. *Journal of Interdisciplinary Perspectives*, 3(10), 493-503. <https://doi.org/10.69569/jip.2025.596>

Abstract. Despite the global shift toward student-centered instruction, localized evidence on the impact of flipped classroom strategies on self-efficacy among elementary education students in Philippine higher education remains limited. Addressing this gap, the study examined the relationship between specific flipped classroom strategies and self-efficacy among Elementary Education students at Visayas State University Isabel Campus. Guided by Bandura's Social Cognitive Theory, the study framed flipped instruction as a potential catalyst for enhancing teacher preparedness and confidence. Using a descriptive-correlational design, data were collected from 120 BEEd students through a validated survey instrument and analyzed using SPSS v29. Statistical tools included descriptive statistics (means and standard deviations), Pearson's correlation, and multiple linear regression analysis. Results revealed that demonstration teaching ($M = 3.85$, $SD = 0.36$) and discussion-oriented strategies ($M = 3.63$, $SD = 0.52$) were the most frequently used. Students reported moderately high levels of self-efficacy across mastery experiences ($M = 3.00$), social modeling ($M = 3.29$), social persuasions ($M = 2.82$), and psychological responses ($M = 2.89$). Significant positive correlations were found between giving of course materials and all four self-efficacy dimensions ($r = 0.49$, $p < 0.001$ for social modeling), as well as between class reporting and key self-efficacy domains ($r = 0.43$, $p < 0.001$ for social modeling). Regression analysis identified giving of course materials ($\beta = 0.42$, $t = 5.26$, $p < 0.001$) and its combination with class reporting ($\beta = 0.30$, $p = 0.001$; $\beta = 0.26$, $p = 0.005$) as significant predictors of self-efficacy. These findings underscore the importance of integrating structured and participatory flipped strategies in teacher education programs to promote student engagement, independent learning, and confidence, ultimately supporting the development of competent and self-efficacious future educators.

Keywords: Flipped classroom; Instructional strategies; Self-efficacy; Social cognitive theory; Teacher education

1.0 Introduction

The landscape of teacher education in the Philippines is undergoing a significant transformation under the framework of the Commission on Higher Education (CHED) Memorandum Order No. 74, series of 2017, which mandates the full implementation of Outcomes-Based Education (OBE). This reform shifts teacher education away from traditional, content-heavy models toward learner-centered, competency-based approaches. CHED grants Higher Education Institutions (HEIs) curricular autonomy to design instructional strategies that align with 21st-century learning outcomes, institutional visions, and national development goals.

At the heart of this reform is a pedagogical shift emphasizing active learning, critical thinking, collaboration, and

student agency. Article V, Section 11 of the CMO explicitly promotes instructional strategies such as collaborative learning, interactive activities, and demonstration teaching, laying the foundation for innovative models like the flipped classroom.

Aligned with these reforms, the flipped classroom has emerged as a viable, evidence-based pedagogical strategy that supports the core goals of OBE. In this model, students engage with foundational content outside the classroom, typically through video lectures or assigned readings, and then apply their understanding during in-class sessions through problem-solving, discussions, or collaborative projects (Guler et al., 2023; Huang et al., 2023). This inversion of the traditional lecture-homework structure facilitates more personalized, interactive, and student-centered learning (Bachiller & Badía, 2020). Empirical studies have linked flipped classrooms to improvements in academic performance, motivation, engagement, and critical thinking skills (Karjanto & Acelajado, 2022; Mortaza Mardih et al., 2023). Within teacher education, these benefits are particularly relevant, as pre-service teachers must not only master content but also cultivate skills in independent learning, reflective practice, and adaptive instructional planning.

However, the success of learner-centered approaches like the flipped classroom depends not only on instructional design but also on learners' psychological readiness, particularly their self-efficacy beliefs. Rooted in Bandura's Social Cognitive Theory, self-efficacy refers to one's belief in one's ability to organize and execute actions required to achieve specific goals (Bandura, 2012). It plays a crucial role in shaping effort, persistence, motivation, and academic achievement (Schunk & DiBenedetto, 2021). In the flipped classroom, where learners are expected to assume greater responsibility for their learning, self-efficacy becomes even more critical.

Moreover, teacher self-efficacy (TSE) is increasingly recognized as a vital psychological construct for the successful implementation of educational reform. As Ma et al. (2021) emphasize, TSE significantly influences teacher motivation, instructional behavior, and adaptability in times of systemic change. Teacher educators, therefore, are uniquely positioned to nurture TSE among pre-service teachers by embedding pedagogical strategies that foster confidence, reflective practice, and adaptive competence. According to Schunk and Usher (2019), self-efficacy develops through four primary sources: mastery experiences, vicarious experiences, social persuasion, and physiological or emotional states. Flipped classrooms with their emphasis on active participation, peer collaboration, and scaffolded learning are well-suited to activate these sources. Mastery experiences can be cultivated through structured tasks and timely feedback, while vicarious learning occurs through peer demonstrations and group collaboration.

However, evidence suggests that self-efficacy does not always increase in parallel with exposure to advanced training. Aure and Jugar's (2017) study on science and mathematics pre-service teachers revealed a decreasing trend in self-efficacy as students advanced through their teacher education programs. Their findings showed that general education courses served as positive predictors of self-efficacy, whereas specialization and professional education courses functioned as negative predictors. This paradox indicates that as pre-service teachers acquire more disciplinary knowledge and professional training, their confidence in teaching may actually decline. To mitigate this, Aure and Jugar recommended targeted interventions in the later years of teacher-preparation programs, particularly in the third and fourth years, when self-efficacy levels tend to be lowest. While their study provides important insights, it was limited to science and mathematics education. Consequently, there remains a gap in understanding whether similar patterns apply to Elementary Education students, particularly in relation to innovative instructional strategies such as the flipped classroom. Although overall self-efficacy among Filipino college students remains relatively high (Cebu, 2023), the mechanisms linking instructional strategies to self-efficacy outcomes remain underexplored, especially within discipline-specific and localized teacher education settings.

International research offers further evidence that flipped learning has the potential to strengthen self-efficacy. For example, Debbag and Yildiz (2021) found that flipped instruction enhanced learners' academic confidence and self-perception, while Zheng et al. (2020) reported that classroom environments emphasizing autonomy and collaboration significantly improved self-efficacy among pre-service teachers. However, much of this scholarship is situated within STEM or general education contexts, underscoring the need for research in teacher education, particularly within Philippine HEIs preparing future elementary educators.

In light of these gaps, this study investigates the relationship between flipped classroom strategies and self-

efficacy among elementary education students at Visayas State University Isabel Campus. Specifically, it seeks to identify which flipped strategies most significantly impact the various dimensions of self-efficacy and how these can be optimized within teacher education programs. The findings are expected to inform instructional design, curriculum development, and educational policy, thereby contributing to the preparation of competent, confident, and self-directed educators equipped for the challenges of 21st-century teaching.

2.0 Methodology

2.1 Research Design

In the study conducted at Visayas State University Isabel Campus, a descriptive–correlational research design was employed to address the central objective of examining the relationship between flipped classroom strategies and the self-efficacy of Elementary Education students. This design was considered most appropriate, as it enables both the systematic description of existing educational practices and the analysis of statistical relationships between variables without experimental manipulation, an approach particularly well-suited to educational contexts where strict control is often unfeasible. As noted by Devi et al. (2020), correlational designs facilitate the investigation of relationships among two or more variables within a single group, potentially across multiple levels. Thus, this design aligns with the study’s aim of exploring the extent to which flipped classroom strategies are associated with self-efficacy levels.

Specifically, the descriptive component of the design was used to illustrate how frequently and to what extent various flipped classroom strategies were implemented. These strategies included the provision of course materials, discussion-based activities, group work, demonstration teaching, and class reporting. In parallel, this component also assessed the levels of self-efficacy among BEEd students, focusing on four key dimensions: mastery experiences, social modeling, social persuasions, and psychological responses. This provided a foundational understanding of current instructional practices and student confidence levels.

Meanwhile, the correlational component served to evaluate the statistical relationships between each flipped classroom strategy and the various dimensions of self-efficacy. Through this approach, the study was able to determine which instructional practices were most strongly associated with higher levels of self-efficacy. Thus, the use of a descriptive–correlational design was not only practical but also aligned with the study's dual goals: to document current teaching practices and to identify meaningful patterns that can inform future instructional improvements in teacher education programs.

2.2 Participants and Sampling Technique

A purposive sampling method was employed to select a total of 127 Bachelor of Elementary Education (BEEd) students for the study. During data cleaning and analysis, one respondent was excluded due to incomplete responses, resulting in a final sample of 126 participants. The inclusion criteria were: (1) active enrollment in the BEEd program; (2) engagement with flipped classroom strategies in professional education courses; and (3) a demonstrated history of task avoidance behaviors, such as frequently postponing, neglecting, or failing to complete academic requirements, leading to incomplete course marks. Students were included if they met all criteria or, at a minimum, had at least one behavioral indicator. These parameters ensured that the participants had relevant exposure to both key variables under investigation: flipped classroom instruction and self-efficacy. Exclusion criteria included students with no exposure to flipped classroom strategies or incomplete academic records that could not support the assessment of task behavior, and incomplete responses.

2.3 Research Instrument

To collect data aligned with the study's objectives, a self-administered questionnaire was utilized, consisting of two main parts: the Flipped Classroom Strategies Test and the Self-Efficacy Test. These tools were adapted from previously validated instruments, with modifications to suit the local educational context and the specific variables under investigation. The questionnaire was administered to Bachelor of Elementary Education (BEEd) students at Visayas State University Isabel Campus.

Flipped Classroom Strategies Test

The first part of the instrument assessed the frequency of use of various flipped classroom strategies. It was adapted from sources including Salas-Rueda & Ramirez-Ortega (2021), Adedoja (2016), and instructional materials from Birdville Schools.net. To ensure contextual relevance, several adjustments were made. For

instance, original items focused heavily on video content; however, these were revised to include a variety of materials such as readings, photos, and multimedia resources. The discussion-oriented strategy section was also broadened to include peer interaction and group-based questioning, not just instructor-led discussions.

Further refinements were made to items describing demonstration teaching and class reporting to highlight their role in professional skill development and teaching practice. These changes shifted the focus from mere classroom activities to strategies with long-term educational benefits. Additionally, the descriptions were standardized to ensure clarity, coherence, and comparability, allowing for more effective analysis.

Each of the five strategies—giving course materials, discussion-oriented activities, group-based tasks, class reporting, and demonstration teaching—was represented by two items, totaling ten questions. Respondents rated each on a 4-point Likert scale from "Never" (1) to "Always" (4), interpreted as follows:

Weight	Range	Adjectival Rating	Interpretation
4	3.25 - 4.00	Always	Highly Utilized
3	2.50 - 3.24	Often	Moderately Utilized
2	1.75 - 2.49	Sometimes	Slightly Utilized
1	1.00 - 1.74	Never	Not Utilized

Self-Efficacy Test

The second part of the questionnaire measured students' self-efficacy across four dimensions: mastery experience, social modeling, social persuasion, and psychological responses. It was adapted from established instruments, including those by Oborah et al. (2021), Kandemir & Perkmen (2017), and the General Self-Efficacy Scale by Schwarzer & Jerusalem (1995). Original items focused on mathematics and coping-related tasks; these were modified to reflect a general teaching context for pre-service elementary educators.

For example, the mastery experience section was broadened to include various subject areas and teaching methods. The social modeling dimension was revised to incorporate influences from peers, mentors, and self-comparison, providing a richer understanding of role modeling. Social persuasion items were refined to include different forms of encouragement, while psychological response items were reworded to reflect emotional factors like stress, motivation, and inspiration.

Language and terminology were localized to improve accessibility—for instance, using "concepts for children" instead of "teaching subject." Overall, these modifications aimed to ensure the items were contextually relevant, clear, and aligned with the study's theoretical framework.

This section comprised 24 items, evenly divided across the four dimensions. It used the same 4-point scale, with the following interpretation:

Weight	Range	Adjectival Rating	Interpretation
4	3.25 - 4.00	Always	High Self-Efficacy
3	2.50 - 3.24	Often	Moderately High Self-Efficacy
2	1.75 - 2.49	Sometimes	Low Self-Efficacy
1	1.00 - 1.74	Never	Very Low Self-Efficacy

Both instruments underwent content validation through expert reviews by research advisers and panel members to ensure conceptual clarity, contextual relevance, and alignment with the study variables. Before the main data collection, a pilot test was conducted involving 30 BEEd students from a nearby campus. The results demonstrated strong internal consistency for both instruments, with Cronbach's alpha values of 0.86 for the Flipped Classroom Strategies Test and 0.93 for the Self-Efficacy Test.

2.4 Data Gathering Procedure

After finalizing the research instruments, the researcher formally sought approval to conduct the study by submitting a letter to the School Chancellor and the Dean of the College of Teacher Education, Arts & Sciences, and Agribusiness at Visayas State University Isabel Campus. A concurrent request was submitted to the Registrar's Office for access to the academic records of potential respondents, to support the selection process

based on defined sampling criteria. Additionally, a letter of permission was sent to the cooperating institution, Palompon Institute of Technology, to conduct a pilot test involving 48 BEEd students. The pilot aimed to evaluate the clarity and appropriateness of each item and to identify any issues in the instrument. After data cleaning, 45 complete responses were retained for reliability testing, while three were excluded due to incomplete data.

Once the instruments were revised and validated, the final version of the questionnaire was converted into a Google Forms format to accommodate a flexible mode of distribution. The actual data collection was conducted over one week, from February 19 to February 27, 2024. Due to the varying schedules and availability of respondents from different levels and sections, a hybrid administration method was employed. Specifically, 117 BEEd students completed the online version of the questionnaire, while 10 students opted for the paper-and-pencil test administered in person. Each respondent was given 20 minutes to complete the instrument.

After administration, online responses were recorded via Google Forms and downloaded into a spreadsheet, while physical questionnaires were collected manually and encoded. After a thorough screening process, one response was excluded due to incomplete data, resulting in a final sample of 126 valid respondents.

Subsequently, all responses were coded, tabulated, and analyzed using Microsoft Excel 2010 and IBM SPSS Statistics 29.0. The analysis involved descriptive statistics, Pearson's correlation, and multiple regression techniques to address the study's research questions.

2.5 Data Analysis Procedure

To ensure accurate, systematic, and objective analysis of the data, the researcher employed a combination of IBM SPSS Statistics 29.0 and Microsoft Excel 2010. These tools facilitated the statistical processing and interpretation of the responses gathered from the validated questionnaires. The following statistical techniques were applied:

Weighted Mean and Standard Deviation

The weighted mean was used to determine the extent to which flipped classroom strategies were implemented, as well as the overall levels of self-efficacy among BEEd students. Meanwhile, the standard deviation measured the variability and consistency of student responses, with lower standard deviations indicating higher agreement among participants.

Pearson Product-Moment Correlation Coefficient (r)

This inferential statistical tool was employed to assess the direction and strength of the relationship between specific flipped classroom strategies (e.g., giving of course materials, discussion-oriented learning, and class reporting) and the four dimensions of self-efficacy (mastery experiences, social modeling, social persuasion, and psychological responses). The significance level was set at $p < 0.05$, and assumptions of linearity, normality, and homoscedasticity were verified before analysis to ensure the validity of the results.

Multiple Linear Regression Analysis

To further determine the predictive power of individual flipped classroom strategies on students' self-efficacy, multiple regression analysis was conducted. This allowed the researcher to identify which strategies served as significant predictors of self-efficacy dimensions. The regression analysis also enabled the examination of beta coefficients (β), t-values, and p-values, contributing to a deeper understanding of the extent to which each strategy influenced student outcomes.

Cronbach's Alpha Coefficients

Reliability of the research instruments was established through pilot testing, with Cronbach's alpha coefficients of 0.86 for the Flipped Classroom Strategies Test and 0.93 for the Self-Efficacy Test, indicating high internal consistency. In addition, the validity of the instruments was ensured through expert review by research advisers and panel members. The process included evaluating clarity, content alignment, and contextual appropriateness.

All statistical procedures, assumption checking, and interpretation of outputs were reviewed and validated by a professional statistician to ensure the accuracy, credibility, and trustworthiness of the data analysis process.

2.6 Ethical Considerations

The institution where this study was conducted does not require formal ethical clearance from an institutional review board. Instead, a certification of approval to conduct the study was granted by the appropriate authorities, contingent upon adherence to established ethical guidelines and protocols.

Certification and Compliance. Before data collection, the researcher obtained official certification approving the conduct of the study. This certification was granted following a review process that ensured compliance with ethical standards set by the Research and Creative Work Committees (RCW).

Informed Consent. Informed consent forms were attached to the first page of the questionnaire, clearly explaining the study's objectives, the voluntary nature of participation, potential risks and benefits, and confidentiality measures. Additionally, signed consent was obtained from respondents for accessing their academic records.

Confidentiality and Anonymity. Participants' privacy was protected by allowing them to withhold their names and by coding all data during analysis and reporting. Collected information was securely stored and only accessible to authorized personnel.

Inclusion and Exclusion Criteria. Only Bachelor of Elementary Education students who met specific criteria, were enrolled in the program, engaged with flipped classroom strategies, and had a history of low self-efficacy were included to ensure sample relevance.

Participant Welfare and Rights. The researcher ensured participant welfare by adopting a hybrid mode of data collection to accommodate varying schedules and minimize risks. Participants were informed of their right to withdraw at any time without penalty.

Ethical Transparency. Throughout the study, transparency was maintained to enable participants to make informed decisions regarding their involvement, ensuring ethical conduct in all stages of the research.

3.0 Results and Discussion

3.1 The Flipped Classroom Strategies

The data presented provides insights into respondents' perceptions and usage of various flipped classroom strategies. Each strategy, including giving course materials, discussion-oriented approaches, group-based activities, demonstration teaching, and class reporting, is accompanied by mean scores and standard deviations, reflecting the level of agreement, usage, and the variability of responses among participants. Table 1 provides a comprehensive overview of the mean scores and standard deviations for various flipped classroom strategies, shedding light on their utilization and effectiveness in enhancing teaching practices and student learning outcomes.

The giving of the course materials strategy received a high mean score of 3.31 ($SD = 0.68$), indicating frequent use. Students valued pre-class readings, videos, and photos, noting these resources improve engagement and comprehension. This aligns with Han and Klein (2019), who found that providing pre-class materials supports student preparation and active learning. The positive impact of this strategy is further reflected in its correlation with all dimensions of student self-efficacy, suggesting that early access to content fosters confidence in mastering course material.

Discussion-oriented scoring 3.63 ($SD = 0.52$), discussion-based activities were highly utilized and perceived as effective. Students reported that interactive questioning and instructor-led discussions enhanced their understanding and retention. This mirrors An and Mindrila's (2020) findings on the benefits of collaborative learning environments. The strong correlation of this strategy with mastery experience and social modeling underscores the role of active dialogue in reinforcing students' belief in their abilities.

Group-based activities with a mean of 3.51 ($SD = 0.56$), group work facilitated peer interaction and collaborative learning. Though positively correlated with social modeling, its relationship to other self-efficacy dimensions was weaker, suggesting limited influence on students' confidence levels compared to other strategies. This may

indicate that while group work encourages engagement, it may not directly boost perceptions of teaching competence.

Demonstration teaching strategy had the highest mean score (3.85, $SD = 0.36$), reflecting its key role in skill development for future educators. Students emphasized the value of real-time practice and observation, consistent with Magday and Pramoolsook (2021), who advocate for ongoing demonstration sessions in teacher education. Despite its perceived importance, correlations with self-efficacy dimensions were modest, which might suggest that while demonstration improves practical skills, it does not strongly affect students' confidence across all efficacy domains.

Class reporting was rated highly (mean 3.48, $SD = 0.65$) and showed strong positive correlations with all self-efficacy dimensions. Engaging in oral presentations and knowledge sharing helped students articulate ideas and build confidence, aligning with Constantine et al. (2019), who identify oral communication as critical for self-efficacy development. The combined effect of class reporting and access to course materials appears to be particularly influential in boosting students' overall self-efficacy.

Table 1. *Flipped Classroom Strategies*

Strategies	M*	SD	Interpretation
Giving of Course Materials	3.31	0.68	Highly utilized
1. The consultation of the readings/photo/videos before the class improves the learning process.	3.34	0.80	Highly Utilized
2. Receiving the readings/photos/video lessons before the class makes me learn better.	3.28	0.79	Highly Utilized
Discussion-Oriented Strategy	3.63	0.52	Highly Utilized
3. Class discussion with the course instructor helped me with my learning.	3.74	0.53	Highly Utilized
4. Interactive questioning through oral recitation during discussion with the course instructor and fellow students activates learning.	3.51	0.71	Highly Utilized
Group-Based Activities	3.51	0.56	Highly Utilized
5. Group Activities during in-class supports adequate learning.	3.43	0.69	Highly Utilized
6. Student-to-student interaction during group activities promotes active learning.	3.58	0.63	Highly Utilized
Demonstration Teaching	3.85	0.36	Highly Utilized
7. The conduct of demonstration teaching improves the development of necessary teaching skills.	3.81	0.47	Highly Utilized
8. The demonstration teaching is important and necessary for pre-service teachers.	3.90	0.36	Highly Utilized
Class Reporting	3.48	0.65	Highly Utilized
9. Class reporting is earnestly conducted to improve the knowledge and skills.	3.42	0.72	Highly Utilized
10. Class reporting is beneficial in the development of teaching skills.	3.54	0.71	Highly Utilized

*Likert Scale: 1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Always*

These findings suggest that instructors employ a variety of active and participatory teaching methods, which may enhance student engagement, learning outcomes, and overall classroom experiences. It reflects a dynamic and student-centered approach to instruction that promotes active learning and student involvement in the learning process.

3.2 The Level of Self-Efficacy

The data illustrated in Table 2 offer valuable insights into the levels of self-efficacy among Elementary Education students across different dimensions, namely Mastery Experiences, Social Modeling, Social Persuasions, and Psychological Responses.

Table 2. *Level of the BEEd Students' Self-Efficacy*

	M*	SD	Description
Mastery Experiences	3.00	0.53	Moderately High
Social Modeling	3.29	0.54	High
Social Persuasions	2.82	0.66	Moderately High
Psychological Responses	2.89	0.46	Moderately High
Total	3.00	0.55	Moderately High

*Likert Scale: 1 = *Never*, 2 = *Sometimes*, 3 = *Often*, 4 = *Always*

The mean score of 3.00 indicates a moderately high level of self-efficacy in mastery experiences, suggesting that students are generally confident in applying varied teaching approaches and adapting to learners' needs. Social modeling scored highest ($M = 3.29$), indicating that observing peers and instructors plays a significant role in shaping students' confidence and capacity to handle academic and professional challenges.

Social persuasions also registered a moderately high level of self-efficacy ($M = 2.82$), reflecting the value students place on encouragement and feedback from instructors, peers, and family in building their belief in their teaching potential. Similarly, psychological responses yielded a moderately high mean score ($M = 2.89$), suggesting that students generally possess resilience, coping skills, and motivation to overcome learning difficulties. However, occasional stress and anxiety remain present.

Overall, elementary education students demonstrate positive self-efficacy across all dimensions. Unlike previous studies, such as that of Simsar and Davidson (2020), which emphasized mastery experiences as the strongest predictor, this study found social modeling to have the most significant influence. This may be due to the frequent use of demonstration teaching, which offers vicarious learning experiences through peer and instructor modeling. This finding aligns with Ma et al. (2022), who emphasize the importance of social modeling and collaborative learning in strengthening teacher self-efficacy during pre-service education.

3.3 Relationship Between Flipped Classroom Strategies and Self-Efficacy Dimensions

The correlation coefficients between flipped classroom strategies and self-efficacy dimensions provide valuable insights into the relationship between instructional methods and students' beliefs in their abilities to perform tasks and achieve goals. Firstly, the positive correlations between Giving of Course Material and all dimensions of self-efficacy (Mastery Experience, Social Modeling, Social Persuasions, and Psychological Response) suggest that providing resources before class enhances students' confidence in their ability to understand concepts, adapt teaching styles, select practical approaches, and teach different content areas ($r = 0.40$ to 0.49 , $p < 0.01$). This correlation indicates that students perceive pre-class materials as supportive of their learning process and instrumental in building their self-efficacy beliefs.

Table 3. *Correlation Coefficients Between Flipped Classroom Strategies and Self-Efficacy Dimensions*

Flipped Classroom Strategies		Mastery Experience	Social Modeling	Social Persuasions	Psychological Response
Giving of Course Material	<i>r</i>	0.40**	0.49**	0.25**	0.21*
	<i>p</i>	0.000	0.000	0.004	0.018
Discussion-Oriented	<i>r</i>	0.34**	0.40**	0.17	0.31**
	<i>p</i>	0.000	0.000	0.063	0.000
Group-Based Activities	<i>r</i>	0.17	0.20*	0.10	0.09
	<i>p</i>	0.054	0.022	0.278	0.366
Demonstration Teaching	<i>r</i>	0.19*	0.24**	0.16	0.07
	<i>p</i>	0.035	0.008	0.078	0.424
Class Reporting	<i>r</i>	0.40**	0.43**	0.22*	0.25**
	<i>p</i>	0.000	0.000	0.012	0.006

**significant @ $p < 0.01$; *significant @ $p < 0.05$

Similarly, the positive correlations observed between discussion-oriented strategy and mastery experience and social modeling dimensions imply that engaging in discussions with instructors positively influences students' perceptions of their knowledge and abilities ($r = 0.34$ to 0.40 , $p < 0.01$). This suggests that participating in

interactive discussions encourages students to visualize themselves learning and applying techniques, thus strengthening their self-efficacy beliefs.

On the other hand, the weaker correlations between group-based activities and self-efficacy dimensions indicate that these activities may have a limited impact on students' self-efficacy compared to other strategies ($r = 0.17$ to 0.20 , $p < 0.05$). Although there is a positive correlation with social modeling, the associations with other dimensions are not statistically significant. This suggests that group activities may not strongly contribute to students' beliefs in their teaching abilities or coping mechanisms.

Similarly, demonstration teaching displays relatively weak correlations with self-efficacy dimensions, indicating that this strategy may not significantly influence students' self-efficacy beliefs compared to other approaches ($r = 0.19$ to 0.24 , $p < 0.05$). Despite a positive correlation with mastery experience, the associations with other dimensions are not statistically significant, implying that demonstration teaching may have a limited impact on students' perceptions of their abilities and talents as future educators.

In contrast, class reporting showed significant positive correlations with all self-efficacy dimensions, suggesting that engaging in reporting activities positively influences students' beliefs in their teaching abilities, coping mechanisms, and social interactions ($r = 0.40$ to 0.43 , $p < 0.01$). The strong correlations imply that class reporting activities contribute significantly to students' confidence in their teaching skills, receiving appreciation from peers and family, and handling challenges effectively.

The correlation analysis underscores the importance of specific flipped classroom strategies, such as providing course materials and engaging in class reporting, in enhancing students' self-efficacy across all dimensions. While discussion-oriented, group-based activities and demonstration teaching only correlated with a few dimensions. The significant relationship between the provision of course materials and self-efficacy was supported by Namaziandust et al. (2020), who found that the use of pre-class instructional materials in the flipped group promotes students' cognitive engagement, efficient interaction, and, consequently, improved self-efficacy.

Conversely, class reporting with a significant relationship to self-efficacy was supported by the "Best Practice Guidebook: Supporting Students' Self-Efficacy" of Constantine et al. (2019), where oral presentations in class support students' self-efficacy development, as they engage in social communication. Difficulty with social-communicative interactions may stem partially from self-efficacy beliefs. Students are likely to feel frustrated if their communication abilities impede their ability to share what they know. In the study, class reporting was operationally related to oral presentations during in-class activities in a flipped classroom.

3.4 Regression Results on Flipped Classroom Strategies and Self-Efficacy

This section presents the results of a Stepwise Multiple Linear Regression analysis conducted to investigate the influence of flipped classroom strategies on the self-efficacy of Bachelor of Elementary Education (BEED) students. The strategies examined include the *Giving of Course Material* and *Class Reporting*. Table 4 displays the regression output.

Table 4. Regression Results on Flipped Classroom Strategies and Self-Efficacy

	R	R ²	Estimate	T	p-value
Intercept	0.48	0.23	1.76	8.58	0.001
Giving of Course Material			0.19	3.32	0.001
Class Reporting			0.17	2.87	0.005

Adjusted R²=0.22, F-Value=18.80, p<0.05

The model is statistically significant ($F = 18.80$, $p < 0.05$), indicating that the included flipped classroom strategies collectively contribute to predicting student self-efficacy. The R^2 value of 0.23 means that the model accounts for 23% of the variance in self-efficacy scores. Although this represents a moderate level of explained variance, it is meaningful in the context of educational research, where multiple, interrelated factors shape student beliefs. The remaining 77% of unexplained variance may be attributed to other personal, instructional, or contextual influences.

The intercept value (1.76, $p < 0.001$) represents the baseline level of self-efficacy in the absence of the measured strategies. Both predictors, Giving of Course Material ($\beta = 0.19$, $p = 0.001$) and Class Reporting ($\beta = 0.17$, $p = 0.005$), exhibited positive and statistically significant effects. This indicates that increased implementation of these strategies is associated with a corresponding rise in self-efficacy among students.

The derived regression equation is:

$$\text{Self-Efficacy} = 1.76 + 0.19(\text{Giving of Course Material}) + 0.17(\text{Class Reporting}) \quad (1)$$

Where:

Self-Efficacy = Predicted Self-Efficacy Score of the Student

1.76 = Constant (Intercept of the Regression Model)

0.19 = Regression Coefficient for *Giving Of Course Material*

0.17 = Regression Coefficient for *Class Reporting*

Giving of Course Material = Student's Rating of this Strategy (Likert Scale)

Class Reporting = Student's Rating of this Strategy (Likert scale)

For example, if a student rates both strategies at a level of 4 (on a Likert scale), the predicted self-efficacy score is: $\text{Self-Efficacy} = 1.76 + (0.19 \times 4) + (0.17 \times 4) = 3.22$ (2).

This result implies a moderately high level of self-efficacy, illustrating the practical impact of implementing these flipped classroom strategies in educational settings. The significant influence of giving course material aligns with findings by Namaziandust et al. (2020), who reported that pre-class instructional content enhances learners' engagement and fosters higher self-efficacy by allowing for advanced preparation. In the present study, students similarly emphasized the importance of early access to materials, noting that it enhances understanding and promotes readiness for active participation during in-class activities. Additionally, class reporting demonstrated a positive effect on self-efficacy. This supports the findings of Catoto and San Jose (2016), who highlighted the value of class reporting in developing communicative competence and self-confidence. In this study, participants reported that completing reporting tasks enabled them to organize their ideas, express themselves clearly, and build the confidence needed for future teaching roles. They also cited gains in vocabulary, study strategies, and subject matter proficiency.

Notably, qualitative feedback suggests that these strategies are most effective when used in combination. Students expressed that reporting was significantly more impactful when preceded by access to relevant course materials. This sequencing allowed them to prepare thoroughly and engage meaningfully in reporting tasks. The combined use of both strategies thus appears to enhance multiple dimensions of self-efficacy—cognitive, affective, and behavioral. These findings highlight the importance of intentional instructional design in teacher education. Incorporating both pre-class material distribution and structured reporting opportunities within the flipped classroom framework can serve as a pedagogical approach that supports the development of future educators' confidence and competence.

4.0 Conclusion

This study offers a substantive contribution to teacher education research by empirically validating the influence of flipped classroom strategies, specifically the provision of course materials and class reporting, on the self-efficacy of elementary education students. Anchored in Bandura's Social Cognitive Theory, the findings affirm that structured opportunities for preparation, participation, and reflection can enhance self-beliefs related to teaching competence, particularly within the outcomes-based, learner-centered framework of Philippine teacher education reform.

For teacher educators, the study underscores the pedagogical value of integrating flipped learning approaches that promote cognitive engagement and professional agency. Designing learning environments that foreground independent study and active student roles is essential in cultivating mastery experiences, social modeling, and other key sources of self-efficacy. At the level of policy and curriculum development, the results advocate for the strategic incorporation of flipped classroom models into pre-service teacher training programs. This includes institutional support for digital resource access, faculty training, and equitable technology integration to ensure that all students can meaningfully engage in flipped instruction.

Future research is encouraged to extend these findings across diverse academic programs and institutional contexts. Longitudinal and mixed-method designs would be valuable in capturing the sustained impact of flipped strategies on teaching identity and classroom performance. Moreover, investigations into potential barriers such as digital inequality, instructional readiness, and learner variability will be critical to informing inclusive and scalable implementation. In sum, this study reinforces the pedagogical and developmental potential of flipped classrooms in teacher preparation, positioning them as a viable framework for fostering the self-efficacy and readiness of future educators in 21st-century learning environments.

5.0 Contributions of Authors

Not Indicated.

6.0 Funding

Not Indicated.

7.0 Conflict of Interests

The author hereby declares that there are no known conflicts of interest associated with this publication, and there has been no significant financial support for this work that could have influenced its outcome.

8.0 Acknowledgment

The author wishes to extend profound gratitude to Dr. Carol O. Laurente, thesis adviser, for her invaluable guidance, encouragement, and unwavering support. Sincere appreciation is likewise conveyed to Dr. Luzviminda A. Tajos, Chancellor of VSU Isabel, and Dr. Catherine L. Chan, Director for Academic Affairs, for their approval and assistance in facilitating the conduct of this study. Special recognition is also accorded to Dr. Rodulfo T. Aunzo, Jr., statistician, for his expertise and assistance in ensuring the accuracy of the data analysis.

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