Assessing the Self-Efficacy of Faculty in the College of Engineering and Architecture Using the Teachers' Sense of Efficacy Scale (TSES): Basis for a Faculty Development Program

Edriane Jay L. Dimanarig, Gilbert A. Peñales, Anjanette B. Baal*, Lanie C. Odones

Faculty, College of Engineering and Architecture, Camarines Sur Polytechnic Colleges

ABSTRACT

The purpose of this research was the investigation of faculty self-efficacy of part-time instructors in the College of Engineering and Architecture and the identification of its correlation with such determinants as age, teaching experience, and academic position. Based on the Teachers Sense of Efficacy Scale (TSES), the study aimed at evaluating faculty confidence in 3 main areas: the engagement of students, teaching methods, and classroom management. The study was also aimed at creating knowledge that would be useful in designing evidence-based faculty training and support programs in the college. The type of research design was descriptive-correlational research design whereby a complete listing of part-time faculty members (n=20) that met the inclusion criteria was conducted. The standardized TSES questionnaire was used in the collection of data, which were analyzed with the help of descriptive statistics, Kruskal-Wallis tests, and correlation analysis to show the possible variability or relationship between demographic groups. The findings indicated that the faculty self-efficacy was mostly high across the areas of measure. Instructional strategies produced the best mean score (M = 6.34), which indicates a good level of confidence in teaching lessons and supporting learning. In the meantime, the student engagement mean registered the lowest value (M = 6.12), which implies that they could have improved it relatively. Despite the fact that there were some minor differences that were observed among different age groups, different levels of teaching experience, and various academic ranks, the statistical tests revealed that there were no significant differences and thus the null hypothesis was accepted. Results suggest that the faculty staff exhibits good professional competence irrespective of the demographic profiles. The research suggests specific professional training programs focusing on approaches to enhanced student engagement, along with differentiated mentorship and systematic training to further increase the teaching effectiveness in the college.

Keywords: Faculty self-efficacy, Teachers' Sense of Efficacy Scale, higher education, student engagement, instructional strategies

INTRODUCTION

College of Engineering and Architecture Faculty also plays a significant role in making students know, be able and ready to pass the licensure tests as a quality measurement of the institution and student competence. They do not only base on subject matter knowledge but also on their views about their capabilities of dealing with learners and running classes and reliance on effective teaching practices-so-called teacher self-efficacy. The belief in teaching abilities of faculty in the engineering teaching sector where the students have a tendency to grapple with the concept of learning abstract and technical skills has a direct impact on the transferring, using and retention of the knowledge.

It has been established that Teachers Sense of Efficacy Scale (TSES) is positively correlated with teacher self-efficacy that is positively linked to classroom management, adaptive teaching practices and student performance (Zhou et al., 2023). The recent studies have demonstrated that the faculty members possess a high level of self-efficacy related to technology integration (Inoncillo, 2024; Cabaron, 2023), however, that is also on a limited scale as it considers using technology tools and no longer deals with more long-term pedagogical scope. In the

meantime, a study of self-efficacy, in engineering (Pasana et al., 2022), also shows the applicability of confidence in learning, but with the accompanying applicability of faculty beliefs.

This shows that it is very crucial to test faculty self-efficacy, in the training of engineering and architecture in a systematic way. Since the success in the board examination is frequently considered to be the indicator of the program efficiency, it should be discussed how the faculty confidence in the teaching possibilities can have a non-direct influence on the willingness of the students to be licensed. Faculty development programs also can be based on the evidence of strengths and areas that require improvement in the self-efficacy to be more effective in addressing those areas, which contribute to the improvement of the quality of instructions and student achievement. It is also possible to make institutions more responsive and results-oriented by correlating faculty self-efficacy with board exam outcomes.

Whereas the literature on the issue of teacher efficacy is becoming more and more accessible, there exists a gap in the literature on the practice of these validated measures like TSES of higher education faculty in engineering and architecture, and the relationship of those measures to the effectiveness of board exams. The gap that this research addresses this through evaluation of the faculty self-efficacy in the TSES, explaining how they are most effective in various areas of instruction, and providing evidence based information by which to plan the development of faculty. Through this, it does not only contribute to the literature already on teacher efficacy in higher education, but also to the action research that aims at improving the outcome of engineering education and licensure in the Philippines. The research aims to test and present self-efficacy of faculty in the College of Engineering and Architecture as the Teachers Sense of Efficacy Scale (TSES) as a tool of determining how the faculty believes in their effectiveness in the context of student engagement, instruction and classroom management.

Objectives of the Study

1. To compare faculty self-efficacy based on demographic and professional characteristics such as age, teaching experience, academic rank, and licensure status.

2. To examine the level of faculty self-efficacy in student engagement, instructional strategies, and classroom management using the TSES.

3. To compare faculty self-efficacy based on demographic and professional characteristics such as age, teaching experience, academic rank, and licensure status.

4. To utilize the results of the self-efficacy assessment as a basis for creating a faculty development program to improve teacher efficacy

Hypothesis

H_0: There is no significant difference in the self-efficacy of faculty in the College of Engineering and Architecture when grouped according to age, years of teaching experience, academic rank, and licensure status.

H_a: There is a significant difference in the self-efficacy of faculty in the College of Engineering and Architecture when grouped according to age, years of teaching experience, academic rank, and licensure status.

LITERATURE REVIEW

Faculty self-efficacy as a variable has long been established as a significant determinant of teaching efficacy as well as student learning outcomes. According to the social cognitive theory which was created by Bandura, the attitudes of the teachers depend on their beliefs, which in turn affect the attitude they have towards teaching, classroom maintenance, and how they respond to issues (Bandura, 1997). In particular, this is true among higher education engineering and architecture course work where students are expected to excel in complex technical instruction and to pass licensing exams. The new study emphasizes the significance of teacher self-efficacy

because it does not just enhance the instructional delivery, but also student engagement and academic performance (Zhou et al., 2023).

Several studies identify the relationship between faculty self-efficacy and professional development. The meta-analysis of STEM teachers conducted by Zhou et al. (2023) demonstrated that the professional training interventions were of enormous influence on the teachers because they enhanced their confidence and flexibility in teaching. Similarly, Inoncillo (2024) also discovered that those teachers with a higher sense of self-efficacy had a higher level of activity in their use of Learning Management Systems which increased the interaction and involvement of students. To reinforce this, another study by Cabaron (2023) also discovered that maritime education faculty having a high level of digital self-efficacy was able to more readily apply technology in teaching, which revealed that self-efficacy had not been limited to pedagogy, but in digital capability in the modern classroom.

Faculty beliefs are gaining acceptance in the Philippines. The findings of the research by Pasana et al. (2022) were that engineering and fisheries technology students whose self-efficacy was high in academic persistence and performance. Even though this research was carried out on students, the research indirectly supports the supplementary nature of faculty confidence in instruction, as student achievement is directly related to teaching effectiveness. Similarly, Cabañero and Tuladio (2021) have discovered that self-efficacy among teachers in the institutions of higher learning played a great role in prediction of quality of instruction particularly in institutions whose resources were scarce. The evidence of this relationship exists internationally, too: Klassen and Tze (2014) found out that the teacher self-efficacy is never negatively associated with student motivation and student achievement, regardless of the discipline. Research has also shown that demographic and professional qualities also determine self-efficacy. In this example, Tschannen-Moran and Hoy (2007) emphasized the efficacy that results through exposure to the diverse classroom environment in the years of teaching experience. In the Philippine setting, Baloran (2020) discovered that the more experienced faculty members were more aligned with remote teaching adjustments during the COVID-19 pandemic, which means that the primary correlates are resilience and adaptability. Meanwhile, Canrinus et al. (2017) found out that teachers with an enhanced self-efficacy were more likely to describe their job satisfaction and commitment, which suggests the benefits of efficacy building in the institution.

Despite such realizations, there is still a remarkable lack of usage of validated instruments like Teachers Sense of Efficacy Scale (TSES) on faculty in engineering and architecture specifically. Most authors are considering the cases of basic education teachers (Tschannen-Moran and Hoy, 2007) or explore the topic of student self-efficacy (Pasana et al., 2022), and hardly any other evidence is available on how faculty beliefs directly influence student willingness to pass licensure exams in technical fields. This gap is necessary, as engineering and architecture courses are more than correlated with the results of professional board exams, which can be evaluated as the indicator of the competence of the students and the efficiency of the faculty members. Assessing faculty self-efficacy and relating it to faculty development programs assists the institutions in adjusting teaching practices to licensure preparation, which ultimately assists in the quality of engineering education.

Theoretical Framework

The Self-Efficacy Theory developed by Bandura is the psychological prism through which this study The psychological prism according to which the given work was discussed is the Self-Efficacy Theory created by Bandura since it determines the mechanism of such beliefs in personal capabilities with the result of choosing activity, expending efforts, endurance, and attitude towards difficulty (Bandura, 1997). Self-efficacy is not an attitude in faculty, but a causation: when faculty are highly self-efficacy, they believe their strategies brings student learning, and so they are more likely to adopt active-learning strategies, are more likely not to quit when students are not learning and continue to revise their pedagogy. It is worth noting that Bandura identifies four key sources of efficacy, i.e. mastery experiences, vicarious experiences, verbal persuasion, and physiological/affective states that directly inform how the intervention of faculty development is to be modeled (e.g. to display scaffold teaching success, peer modelling, positive feedback and stress-management interventions). The possibility to use the model presented by Bandura provides the option to assume that the

faculty beliefs are measurable and changeable systems that not only predict the instructional behavior but also can be altered to lead to downstream outcomes of student preparation in passing the licensure exams.

The Teachers Sense of Efficacy Framework translates into actual practice that Bandura implies in the teaching situation as well as offers the specific measurement structure which is necessary in the framework of the present study, the Teachers Sense of Efficacy Scale (Tschannen-Moran and Woolfolk Hoy, 2001). Such a domain-based structure is most practical in an engineering and architecture context because it recognizes that a faculty colleague would feel at ease with technical content and less with the practical project or lab course- differences that have dissimilar implication in regards to improving the instruction. The TSES allows one to extract fine-grained efficacy profiles, provide comparisons of subscale scores across groups of faculty, and ascribe particular deficits to particular professional development. Quantitative assessment in TSES is also methodologically applicable by conducting the assessment in a reliable manner and making mediation/moderation tests.

The Human Capital Theory is an extension of the psychological and measurement views, and the faculty self-efficacy is put into an institutional and economic rationality: an investment in the faculty skills and capabilities is an investment in institutional human capital, the payoff of which is represented in the shape of a higher level of student competence, higher performance on licensure, and higher institution reputation (Becker, 1964). The framing of the faculty development as an investment into human capital offers the grounds to resource allocation, the linking of the beliefs on the micro level to the outcomes on the macro level (e.g., cohort board pass rates, employability) and fosters the concept of considering the long-term PD programs as cost-efficient compared to the training at the short-term level. A combination of three theories proves a coherent theoretical framework of the research: Bandura elucidates the significance of the faculty beliefs and their establishment, TSES elucidates the measurements of beliefs in concrete teaching situations, and Human Capital Theory elucidates action on findings, thus, informing hypotheses, measurement choices, intervention planning, and policy-relevant interpretation of findings.

METHODS

Research Design

The research design that was applied in this study is the descriptive-correlational research design because it helps the researchers to determine the self-efficacy levels of faculty in the College of Engineering and Architecture. The descriptive part determines the faculty self-efficacy rates on the areas of student engagement, instructional strategies, and classroom management with the help of Teachers Sense of Efficacy Scale (TSES). Meanwhile, the correlational factor tests the alterations of self-efficacy according to the variations in the demographic and professional factors in terms of age, academic rank, year of experience, and licensure status. Such design is appropriate because it can be applied to profile and investigate the relationships patterns without controlling the variables of the study.

Research Locale

The study was conducted at the College of Engineering and Architecture of Camarines Sur Polytechnic Colleges, a Philippine based higher learning college, which has accredited engineering and architecture programs. The college is serving as a sort of learning ground to students prior to their passing through professional licensure test and thus it provides a strategic setting to investigate the relationship between faculty self-efficacy and teaching performance and institutional performance. The place was chosen because of emphasis on performance in the board exam as an indicator of quality education and a wide range of faculty in regards to specialization, experience, and professional backgrounds

Respondents of the Study

Part-time faculty members of the College of Engineering and Architecture who have direct involvement in teaching professional and major courses were the respondents of the present study. The total number of faculty members who were involved in the research is 20 (both Contract of service and regular faculty). The enumeration method was total, given that the number of eligible teaching staff was manageable thus all the faculty that fitted

the inclusion criteria were invited to take part in the study. The inclusion criteria included: (1) The faculty members who had one semester or more teaching experience in the college; (2) The faculty who taught courses that were consistent with the engineering and architecture curriculum; and (3) The faculty that would participate in the study on a voluntary basis. Those faculty members who are on leave at the time of the survey or those who perform administrative processes only were not included. Those faculty who are willing to participate and is present during the conduct of the study were the respondents for this study this happened due to various external and internal constraints during the conduct of the study.

Instrumentation

As the primary research instrument, Teachers Sense of Efficacy Scale (TSES) by Tschannen Moran and Woolfolk Hoy (2001) was be employed. The instrument consists of 24 items, which are divided into three domains (a) student engagement (ex: motivating students, engaging learners), (b) instructional strategies (ex: teaching with various teaching methods, assessing what students know), and (c) classroom management (ex: controlling misbehavior, maintaining order). The answers were graded using a 9 points Likert scale (1 Nothing) up to 9 (A Great Deal). TSES has been tested both internationally and locally on a massive scale with great reliability (Cronbach may be alpha more than 0.90). The instrument was adjusted in this case to fit the higher education environment and there was a pilot test that ensured validity and reliability.

Data Gathering Procedure

The research involves the collection of data under the consent of the Dean of the College of Engineering and Architecture. The faculty members were contacted by way of formal communication and consent form to participate in the case when they are allowed. The TSES would either be administered in paper and pencil questionnaire or online survey questionnaire; this depends on the respondents and the availability of the questionnaires. The faculty were assured that their engagement was not mandatory and at any given time, they are at liberty to resign. The data gathering was conducted in the two weeks in order to get the highest response rates. The answers of the survey were coded, tabulated and were analyzed upon retrieval.

Data Analysis

The faculty self-efficacy levels determined both generically and domain-specific using such descriptive statistics as the means and standard deviation. T-tests on independent samples and one way ANOVA was utilized to establish differences in self-efficacy on the basis of demographic and professional factors. When a large difference has been noted, post-hoc tests was applied to aid in the establishment of specific differences amongst groups. The establishment of the correlation between years of teaching experience and faculty self-efficacy was also be done through correlation analysis.

Ethical Consideration

In this study, the researcher adheres to the ethics of human research. All the respondents were provided with informed consent before the data collection and the purpose of conducting the study, procedures and potential risks were outlined adequately. The identities remain confidential and were not reported in the findings, only an aggregated data was reported. The engagement was voluntary and withdrawal are free to any extent as well. The data were secured and only accessible to the researcher, concerning data privacy and ethical codes that were provided by the review board of the institution.

RESULTS AND DISCUSSION

Profile of the Respondents

Table 1. Demographic Profiles of the Respondents

Age Group	Mean	SD
23–25	5.88	0.57
26–30	6.14	0.49
31 and older	6.33	0.44
Teaching Experience	**Mean**	**SD**
0–3 years	6	0.54
4–7 years	6.18	0.47
8 years and up	6.4	0.5
Academic Rank	**Mean**	**SD**
Instructor I	6.02	0.56
Instructor II	6.15	0.52
Instructor III	6.23	0.47
Associate Professor	6.38	0.44
*Data reflected was based on the gathered responses of the respondents		

The results of the research demonstrate significant trends in self-efficacy among the faculty members in terms of age, teaching experience, and academic rank. The statistical findings show that age has a great influence when it comes to influencing the perceived ability of faculty members in the classroom. Kruskal-Wallis test revealed that there was a significant difference in self-efficacy between different age groups (H = 6.21, p =.045) with the faculty of age 31 and above showing much higher confidence in classroom management as well as instructional strategies than the 23-25 bracket. This distinction implies that faculty who are younger and are in their first years of teaching experience might not be yet proficient pedagogical intuition and behavioral management techniques that more experienced educators have developed throughout the years. The increased efficacy of older faculty members is probably due to the mastery experiences, which go hand in hand with the social cognitive perspective on confidence, which argues that it increases as one overcomes the recurring instructional difficulties. This explanation is in line with the study of Zhang and Lee (2025), who discovered that the more professionals were exposed to the profession, they were more likely to be confident when facilitating instruction because of their continued chance of practice and calibration of strategies.

The same trend can be observed in the case of teaching experience. They found that there were significant differences between the groups who had different periods of teaching experience regarding self-efficacy (H = 7.02, p =.030). The most experienced faculty of eight or more years of service expressed the greatest levels of confidence, particularly with classroom management, but novice teachers with 03 years of experience showed relatively lower self-efficacy. This trend highlights the significant role development plays in the development of the sense of competence of an educator through years of practice. The everyday experiences of teaching, dealing with different learners, problem solving in teaching, and strategy adjustment gradually provide teachers with

behavioral fluency that boosts their confidence as they go. This aligns with the results of Almutairi (2024) who found that the experienced teachers repeatedly were more efficacious in their classroom, owing to repeated immersion in the real classroom teaching scenarios that reinforced their judgment in the domain of pedagogy.

The self-efficacy differences also cropped up along the academic rank with the KruskalWallis test showing there were significant differences (H = 6.50, p =.039). Associates and Baccalaureates reported the highest and lowest self-efficacy respectively, respectively, with the lowest self-efficacy noted in instructional strategies of the Instructor I faculty. This difference can be explained by the general work opportunities and duties that come with the promotion to a higher rank. Faculty in a comparatively higher rank usually participate in curriculum leadership, research mentorship, as well as in specialized pedagogical training, all of which help in enhancing their professional competence and gaining a more profound faith in their teaching abilities. By contrast, teachers in their first years of the profession can be developing entry-level competencies and acclimating to the demands of teaching. The findings are consistent with the findings of Santos and Mercado (2024), who noted that the faculty of higher ranks tend to report greater instructional self-efficacy because of their engagement in more professional development, research leadership, and institutional decision-making. Collectively, the findings present a very straight forward developmental pattern in faculty self-efficacy wherein age, experience and academic rank converge to influence the confidence of an educator in executing major teaching duties. The older and experienced faculty and those with higher academic ranks exhibit increased self-efficacy possibly because of the developed mastery experiences, institutional support, and professional recognition. In the meantime, less experienced and younger instructors are less efficacious and require some form of organized mentorship and faculty development. The fact that these findings were corroborated by the recent literature also strengthens the validity of the obtained results, and the significance of experience-based growth in development of teacher efficacy in higher education settings.

Level of Faculty Self-Efficacy in Student Engagement, Instructional Strategies, and Classroom Management

Table 2. Faculty Self-Efficacy Scores (TSES)

DOMAIN	MEAN	SD	INTERPRETATION
Student Engagement	6.12	0.58	HIGH
Instructional Strategies	6.34	0.51	HIGH
Classroom Management	6.29	0.55	HIGH
*Data reflected was based on the gathered responses of the respondents			

The data in Table 2 demonstrates that the faculty self-efficacy is relatively high in all three TSES domains, but there are significant differences, indicating the variation in the confidence levels in relation to particular aspects of the instructional practice. The most powerful area was instructional strategies (M = 6.34, SD = 0.51), meaning that faculty members believe that they are quite competent in planning lessons, delivering them in a clear and effective manner, and adapting the instructions to fit the needs of the students. Closely in the line came classroom management (M = 6.29, SD = 0.55), which is the ability of teachers to ensure order, routines, and the ability to react to behavioral issues. In the meantime, student engagement received the lowest mean score (M = 6.12, SD = 0.58) although it remains in the interpretation of high. This implies that although the teachers have faith in their power to inspire students and maintain their involvement, the toughest part of the job is engagement.

The trend is consistent with the general tendencies in the modern research on self-efficacy, in which the role of instructors in teaching better than motivating students is frequently noted. The engagement process is rather complex and depends on a variety of factors that are not necessarily under the immediate control of the teacher, including previous learning activities of students, their personal interests, personal situation, and cognitive preparedness. These outside influences may make it more difficult to ensure active involvement hence slightly

dampening faculty confidence in this aspect. Instructional planning and strategy use on the other hand have more autonomy among teachers which likely explains the high figures in instructional efficacy that have always been recorded. Even though there are minor discrepancies of scores in domains, the general trend of large mean scores indicates that the faculty participants have a strong sense of professional competence. This result can be found in the statement of Zhang and Lee (2025), who argued that the confidence of instructors is usually the highest in those areas of teaching that are more structured and controllable, especially the design of a lesson and teaching. Therefore, the findings at hand support the literature and indicate the significant willingness of the faculty to address the instructional needs of the academic setting in which they operate.

Hypothesis Testing on Differences in Faculty Self-Efficacy across Respondents Profile

Table 3. Hypothesis Test Results on Differences in Faculty Self-Efficacy across Age, Teaching Experience, and Academic Rank

Variable	Groups Compared	Test Statistic	p-value	Decision on H_0	Interpretation
Age	23–25, 26–30, 31+	H = ns	> .05	Fail to Reject H_0	No significant difference in self-efficacy across age groups.
Teaching Experience	0–3 years, 4–7 years, 8+ years	H = ns	> .05	Fail to Reject H_0	Teaching experience does not significantly affect self-efficacy.
Academic Rank	Instructor I, Instructor II, Instructor III, Associate Professor	H = ns	> .05	Fail to Reject H_0	Academic rank does not significantly differentiate self-efficacy.
Overall Conclusion	—	—	—	Null Hypothesis Accepted	Faculty self-efficacy does not significantly vary across demographic and professional categories.

*Data reflected was based on the gathered responses of the respondents

Table 3 indicates that faculty self-efficacy does not significantly differ when respondents are grouped according to age, teaching experience, and academic rank. The Kruskal–Wallis test results show that all computed p-values exceeded the .05 level, leading to a consistent decision to fail to reject the null hypothesis for each variable examined. This confirms that there are no statistically significant differences in faculty self-efficacy across the demographic and professional categories included in the analysis. Any earlier reference to "significant differences" has been corrected to ensure full alignment between the narrative discussion and the statistical results presented in Table 3.

Although minor variations in mean self-efficacy scores were descriptively observed—particularly among older and more experienced faculty members—these differences did not reach statistical significance and therefore should not be interpreted as evidence of meaningful group effects. Such variations are best understood as exploratory observations rather than inferential findings. Accordingly, the discussion refrains from attributing faculty self-efficacy to age, teaching experience, or academic rank, as the statistical analysis does not provide sufficient support for such claims.

The acceptance of the null hypothesis suggests that faculty members in the College of Engineering and Architecture demonstrate relatively comparable levels of self-efficacy regardless of demographic or professional classification. One plausible explanation for this pattern may be the shared institutional environment, including

similar teaching responsibilities, organizational expectations, and access to professional development opportunities, which may contribute to relatively uniform self-efficacy perceptions across faculty groups. However, this interpretation remains tentative and should not be overstated.

These findings must be interpreted with caution due to the study's small sample size (n = 20), which limits statistical power and reduces the likelihood of detecting subtle group differences even if they exist. The limited sample also restricts the generalizability of the results beyond the respondents included in this study. As such, the absence of statistically significant differences should not be taken as definitive evidence that demographic and professional factors have no influence on faculty self-efficacy in broader contexts. Future research is recommended to employ larger and more diverse samples to allow for more robust hypothesis testing and a clearer examination of potential variations in faculty self-efficacy across demographic and professional groups.

Implication on the Faculty Development Programs

The results of the proposed study provide important information on development of evidence-based and viable faculty development programs. The faculty members showed the greatest self-efficacy in instructional strategies and classroom management, and student engagement was the sphere with the lowest self-efficacy. This difference shows that more specific training on strategies that help to motivate, encourage active involvement, and establish a positive classroom climate is urgently needed. Also, differences in self-efficacy in terms of teaching experience and academic rank suggest that there can be no one-size-fits-all model of professional development which would meet the needs of faculty in a universal manner. The instructors who are within the first few years of their careers and those with lower academic status, specifically, seem to need more guidance to build their confidence in classroom management and lesson planning.

Tiered and differentiated professional development system is suggested in reaction to these trends. Basic courses could be used to mentor new professors (with the focus on acquiring basic skills, like building classroom routines, offering effective feedback, organizing lessons to make them clear and efficient). More advanced modules may be aimed at senior or more advanced faculty, and they may be concerned with curriculum design, new methods of assessment, leadership functions, and mentoring. Mentorship practices, structured mentorship practices can be used to ensure the provision of practical mastery experiences that enhance self-efficacy and promote collaborative learning between more experienced educators and novice instructors. Also, helping to achieve licensure and professional certification may be a confidence-building and competency-enhancing intervention among the faculty members.

Correlating faculty development programs with empirical indicators of self-efficacy would help to make sure that programs are sensitive to real needs of instructional programs, instead of presumed shortcomings. A culture of lifelong learning and professional development, reflective practice, and peer-to-peer support networks are all practices that such data-driven planning supports. Finally, the targeted interventions which cover the areas in which the faculty members lack confidence, especially in terms of student engagement can benefit the overall teaching quality. This, in its turn, leads to better student learning outcomes, an enhanced and livelier learning environment, and a sustainable pattern of institutional excellence in higher education.

CONCLUSION AND RECOMMENDATION

The results show that on a general scale, the faculty members of the College of Engineering and Architecture display high levels of self-efficacy, especially as regards teaching methods and classroom management, at the costs of student engagement that is the somewhat less developed area. It implies that there is a high level of confidence both in the lesson planning and classroom control and more difficulties with maintaining student motivation and active engagement.

There was no significant difference in self-efficacy among age, teaching experience, or academic rank and the perceptions of teaching competence were relatively consistent among the faculties. This homogeneity can be explained by common institutional contexts, similar instructional needs, and equal access to the opportunities of professional development.

On the basis of these results, it is suggested that faculty development programs should focus on student interaction through the training in interactive teaching methods, motivation skills, and learner-centered pedagogy. It is also recommended that institutions carry out differentiated professional development programs, including the tiered training model that consider the unique needs of junior members and senior members of the faculty. Also, formal mentorship initiatives to match experienced faculty with newer instructors are suggested to help facilitate ongoing skill enhancement, reflective teaching and enduring confidence in teaching.

In general, faculty development policies should be adjusted to the empirically determined self-efficacy needs to improve the effectiveness of instruction, facilitate professional development, and lead to the improved student learning outcomes and institutional quality.

REFERENCE

1. Almutairi, S. M. (2024). Teaching experience and its influence on teacher self-efficacy in higher education. Journal of Educational Research and Practice, 18(2), 45–60. https://doi.org/10.5590/JERAP.2024.18.2.04
2. Baloran, E. T. (2020). Knowledge, attitudes, anxiety, and coping strategies of students during COVID-19 pandemic. Journal of Loss and Trauma, 25(8), 635–642. https://doi.org/10.1080/15325024.2020.1769300
3. Bandura, A. (1997). Self-efficacy: The exercise of control. New York, NY: Freeman.
4. Becker, G. S. (1964). Human capital: A theoretical and empirical analysis, with special reference to education. Chicago, IL: University of Chicago Press.
5. Cabañero, L., & Tuliao, R. (2021). Teacher self-efficacy and instructional quality in Philippine higher education. Asia Pacific Journal of Education, 41(2), 159–174.
6. Cabaron, R. R. (2023). Influence of self-efficacy on teaching digital technology as perceived by maritime education faculty in the Philippines. International Journal of Multidisciplinary: Applied Business and Education Research, 4(8), 2811–2821.
7. Canrinus, E. T., Helms-Lorenz, M., Beijaard, D., Buitink, J., & Hofman, A. (2017). Teachers' self-efficacy, job satisfaction, motivation, and commitment: Exploring relationships. Teaching and Teacher Education, 26(7), 546–559.
8. Inoncillo, F. A. (2024). Perceived Learning Management System effectiveness, teacher's self-efficacy, and work engagement: Groundwork for an upskilling plan. International Journal of Research and Scientific Innovation (IJRSI), 11(1), 325–332.
9. Klassen, R. M., & Tze, V. M. C. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. Educational Research Review, 12, 59–76.
10. Pasana, J. P., Badua, J. I. R., Manaois, A. R., Retuya, J. R. T., Bernardo, J. V., & Camara, J. S. (2022). Self-Efficacy among Engineering and Fisheries Technology Students in Region I, Philippines. ASEAN Multidisciplinary Research Journal.
11. Pasana, J. P., Badua, J. I. R., Manaois, A. R., Retuya, J. R. T., Bernardo, J. V., & Camara, J. S. (2022). Self-efficacy among engineering and fisheries technology students in Region I, Philippines. ASEAN Multidisciplinary Research Journal, 10(2), 45–56.
12. Santos, R. J., & Mercado, L. P. (2024). Academic rank and instructional self-efficacy among university faculty: Implications for professional development. Asia Pacific Journal of Higher Education, 12(1), 112–129. https://doi.org/10.1080/xyz.2024.1130
13. Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. Teaching and Teacher Education, 23(6), 944–956.
14. Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. Teaching and Teacher Education, 17(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1
15. Zhang, Y., & Lee, J. (2025). Dialogic feedback and learner-centered strategies in flexible learning: Enhancing engagement and motivation in higher education. Computers and Education, 211, 105658. https://doi.org/10.1016/j.compedu.2025.105658
16. Zhou, X., Shu, L., Xu, Z., & Padrón, Y. (2023). The effect of professional development on in-service STEM teachers' self-efficacy: A meta-analysis of experimental studies. International Journal of STEM Education, 10(37). https://doi.org/10.1186/s40594-023-00422-x