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Research Article

The Impact of Training and Development on College Instructors' Professional Development at St. Cecilia's College-Cebu, Inc.

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ABSTRACT

This descriptive-correlational study investigated the effect of training and development programs on the professional development of college instructors at St. Cecilia College-Cebu, Inc., through identifying the direct impacts of the training and development variables on their professional development. A survey questionnaire was used to gather data from 33 college instructors. To analyse the data, both descriptive and inferential statistics were applied, specifically Spearman's Rho correlation and Multiple Regression. The results confirmed significant positive correlations between training method (Spearman's $\rho=.613$, $p <.001$), training frequency (Spearman's $\rho =.547$, $p =.002$), trainer expertise (Spearman's $\rho =.567$, $p <.001$), training resources (Spearman's $\rho =.620$, $p <.001$), and professional development. A multiple regression analysis indicated that the four predictors jointly accounted for 56.7% of the variance in professional development ($R^2 = 0.567$). Expertise of trainers ($\beta = .402$) and training resources ($\beta = .351$) were the strongest predictors. The other predictors, including training method ($\beta = 0.298$) and training frequency ($\beta = 0.276$), were also significant ($\beta = 0.276$). These findings highlight the importance of proper training strategies, continuous training, professional facilitation, and adequate resources in promoting professional development. Finally, the institution should improve its training and development processes by adopting more interactive and practical methods, such as blended learning and scenario-based training. The institution should also invest in trainers' continuous development through regular appraisals and professional development opportunities. The training session plan needs to be more consistent and comprehensive to support routine professional development. Lastly, access to new training materials and online education should be improved to facilitate further growth for instructors.

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Keywords: Professional Development, St. Cecilia's College-Cebu, Inc., Trainer Expertise, Training and Development, Training Frequency, Training Method, Training Resources

Background

In today's fast-changing world of education, instructors play an essential role in shaping students' futures. Since educators mold the personalities, ways of thinking, and intellectual backgrounds of future generations, becoming essential pillars of societal growth, they are vital to the development of a strong nation (Babu, 2025). Training and development programs are one way to enhance teacher performance (Faudiah, 2023). Similarly, without training, employees undoubtedly unleash their potential to contribute significantly to the organization (Nardo et al., 2022). They are important in ensuring that educators are properly equipped with the knowledge, skills, and competencies to address the demands of the times effectively. According to Kalim and Bibi (2024), instructors who are professional and experienced can more effectively teach learners and apply a variety of teaching techniques. Professional growth also enhances instructors' pedagogical proficiency in applying evidence-based strategies to help students learn more effectively, as suggested by a study by Ramos-Rodriguez et al. (2022). Their study illustrates the need to personalize training to meet instructors' requirements and workplace demands.

Professional development (PD) is considered a key factor in educational quality. A study by Basma and Savage (2023) demonstrates that quality, long-term, and contextually relevant PD, instead of short-term and brief workshops, is more likely to enhance teaching practices and student performance. It will encourage their learners, enable them to acquire new technologies, and establish good teaching practices. Furthermore, training empowers instructors to adapt to constantly evolving educational policies, curriculum changes, and other developments in the academic environment.

Studies have shown that professional development can positively affect teaching performance and enhance teacher job satisfaction. Through their research, Duk et al. (2021) found that professional development initiatives fo-

cused on enhancing collaboration among instructors are most effective in fostering a culture of continuous improvement and improving teaching quality. Reflective practice, instructional strategies, and peer learning programs also help to support teacher motivation and confidence. Pedagogical training is needed to perfect the teaching practice. Nguyen et al. (2021) found that professional development initiatives focused on active learning and collaborative teaching are likely to result in significant changes in instructional practices. Through these activities, instructors can learn new methods, share ideas, and receive constructive feedback from their colleagues and mentors. Furthermore, Professional Development programmes with a primary focus on technology integration, inclusive instruction, and active learning methods allow instructors to meet the changing needs of the modern classroom (Akram et al., 2022). Long-term benefits for teaching effectiveness are also achieved through supportive training programs that provide ongoing support and help instructors build a community of learners.

This research was closely related to the fourth United Nations Sustainable Development Goal (SDG 4): Quality Education. SDG 4 aimed to achieve inclusive and fair quality education and to foster continuous learning opportunities. Professional development of instructors is closely connected to achieving this objective, as it helps them deliver high-quality instruction and prepares them to meet the needs of diverse learners. The training and development programs of college instructors play an important role in creating the conditions for quality education. This research also had a strong connection with SDG 8: Decent Work and Economic Growth, which strives to ensure productive employment and decent work for everyone. In the context of this study, this objective is directly related to the significance of teacher training and professional development. Properly trained college instructors feel more empowered, productive, and satisfied in their

jobs. Not only does this result in improved education, but it also creates a more vibrant and sustainable workplace, which is exactly what SDG 8 aims to achieve. This study led to improvements in educational standards, the closing of gaps, and the attainment of academic excellence worldwide by focusing on instructors' professional development.

Training and development initiatives are key to maximizing educational quality and institutional performance. St. Cecilia's College-Cebu, a higher education institution in the Philippines, specifically in Minglanilla, Cebu, has adopted training and development initiatives to equip faculty members with the necessary skills. However, there was a significant gap in information about the role of such training and development programs in the professional development of instructors at local institutions. The literature on faculty development programs has expanded internationally. Still, much of it generalizes research findings without giving much consideration to the particular cultural, economic, and organizational contexts in which such programs are carried out. This lack of knowledge leads to a lack of understanding of how international best practices for developing faculty are translated into practical, measurable effects across different educational areas or systems. The role of teacher development is becoming more and more acknowledged as one of the pillars of long-term educational improvement; however, the causality between training programs and the result of professional growth is still dependent. This study sought to address these gaps by incorporating more localized data from St. Cecilia's College-Cebu, Inc., to show how context-relevant training and developmental interventions affect the professional development and career paths of college faculty.

Considering the context, this study assessed how training and development programs affect the professional development of college instructors in St. Cecilia's College-Cebu, Inc. It also discussed the impacts of development programs on instructors' job satisfaction, retention, and career advancement, offering insights into improving institutional policy and practice. Moreover, the paper offered recommendations on how the institution can enhance

its training programs to achieve the goals of SDG 4 and SDG 8, benefiting all instructors.

Research Questions

This study explored the impact of training and development programs on the professional development of college instructors at St. Cecilia's College-Cebu, Inc. The challenge was to evaluate and comprehend the effects of these programs on instructors' knowledge, skills, and overall career development.

Specifically, this study sought to answer the following questions:

1. What is the level of agreement as perceived by the college instructors of training and development aspects, specifically:
 - 1.1. Training Method;
 - 1.2. Training Content;
 - 1.3. Training Duration;
 - 1.4. Training Frequency;
 - 1.5. Trainer Expertise;
 - 1.6. Training Resources; and
 - 1.7. Learning Environment?
2. What is the perceived level of professional development of college instructors participating in the study?
3. Is there a significant relationship between:
 - 3.1. Training method and professional development;
 - 3.2. Training content and professional development;
 - 3.3. Training duration and professional development;
 - 3.4. Training frequency and professional development;
 - 3.5. Trainer expertise and professional development;
 - 3.6. Training resources and professional development; and
 - 3.7. Learning environment and professional development among College Instructors at St. Cecilia's College, Cebu, Inc.
4. Which among the identified training and development aspects significantly predict professional development?
5. Based on the findings, what recommendations can be proposed?

Methodology

The study utilized a quantitative descriptive-correlational research design to examine

the relationship between training and development programs and the professional development of college instructors at St. Cecilia's College-Cebu, Inc. The descriptive aspect aimed to describe the current situation in faculty training activities, and the correlational part examined whether there were any significant correlations between the training and development programs, including training method, training frequency, trainer expertise, training resources, and learning environment, and professional growth of the instructors. A validated self-made questionnaire was used to collect data, which were analyzed using descriptive and inferential statistics, Spearman's rho, and multiple regression.

This research was conducted at St. Cecilia College-Cebu, Inc. (SCC-CI), a private academic institution based in Poblacion Ward II, Minglanilla, Cebu. The institution is defined by its diverse academic programs, commitment to high-quality education, and proactive faculty development. It is a Lasallian Schools Supervision Office (LASSO) Consultancy School that supports Lasallian teaching principles of professional development and excellence in teaching. The enabling environment within the institution made it a good and relevant place to explore the effects of training and development programs on teacher competencies and professional growth.

Table 1. Scoring Procedure for the Study

Scale	Mean	Interpretation
4	3.26-4.0	Strongly Agree
3	2.51-3.25	Agree
2	1.76-2.50	Disagree
1	1.0-1.75	Strongly Disagree

Respondents' responses were effectively measured using closed-ended questions on a 4-point Likert Scale. To start with, the largest scale is (4), the scale range is 3.26 - 4.00, which corresponds to the descriptive equivalent of Strongly Agree. Second, (3), scale range of 2.51 -3.25, descriptive equivalent: Agree. Third, (2), scale range of 1.76 -2.50, descriptive equivalent of Disagree, and finally, (1), scale range of 1.0 - 1.75, descriptive equivalent of Strongly Disagree.

To obtain a more recent list of college instructors for the 2025-2026 academic year, the researchers coordinated with the HR Department of St. Cecilia College-Cebu, Inc. All college instructors who met the inclusion criteria were selected through consensus sampling to ensure no eligible instructor was left out of the data collection. After the selected instructors were identified, they were approached and told about the nature and goals of the study. Informed consent forms were provided, and only those who were willing and not pressured to participate were included. The instrument used to collect data was a validated self-made questionnaire. The researchers personally dis-

tributed the survey questionnaires and provided clear instructions to the respondents. The researchers obtained the completed questionnaires and checked their completeness. All responses were then encoded and entered into statistical software for analysis.

The responses of 33 college instructors at St. Cecilia's College-Cebu, Inc., were analyzed using Jamovi (version 2.6). Instructors' perceptions of training and development programs were summarized using descriptive statistics (mean and standard deviations). The data failed to meet the normality assumptions (Shapiro-Wilk, $p < 0.05$). Spearman's rho was used to assess the relationships between training variables (method, content, duration, frequency, trainer expertise, resources, and learning environment) and professional development outcomes (teaching effectiveness, technology integration, and research engagement). The researchers used multiple regression to identify which training and development aspects significantly affect instructors' professional development.

The study was conducted in accordance with all ethical requirements to protect re-

spondents' rights, privacy, and well-being. Before participating in the study, the respondents were well informed about the purpose, procedures, risks, and benefits of the research. Participation was voluntary, and one could withdraw at any time without penalty. Anonymity

was ensured by omitting any identifying data and by coding responses. All information was safely kept and only available to the researchers. Data was collected after obtaining approval from the research ethics committee in the institution.

Result and Discussion

Table 2. Summary of Faculty's Perception on the Different Aspects of Training and Development

Training and Development Aspects	Mean	Interpretation
Training Method	3.01	Agree
Training Content	2.952	Agree
Training Duration	2.826	Agree
Training Frequency	2.76	Agree
Trainer Expertise	2.93	Agree
Training Resources	2.80	Agree
Learning Environment	2.73	Agree
Professional Development	2.88	Agree

As presented in Table 2, the Training Method received the highest mean score (3.01), indicating strong faculty agreement on the appropriateness and benefit of the strategies and techniques used in training, suggesting effective pedagogical design and delivery of professional development programs. In particular, instructors emphasized the significance of collaborative workshops for enhancing their digital literacy skills, noting that the practical experience and collaborative feedback were invaluable. On the other hand, the Learning Environment received the lowest mean score (2.73), indicating that instructors perceive the broader environment as unsupportive of professional growth. Some of the instructors emphasized that the lack of institutional funding for professional development imposed personal financial burdens, affecting their motivation and ability to participate in and benefit from training initiatives. These findings suggest that while the training and development were perceived positively, institutional support requires significant improvement.

Furthermore, the overall interpretation across all training and development aspects was Agree, which indicates that instructors perceive the institution's training and development initiatives positively. Singh (2023) found that continuous instructor professional development can lead to better classroom instruction and stronger pedagogical skills, which, in turn, have a direct positive impact on student learning outcomes. Additionally, access to resources and support, as well as instructor empowerment, are essential for promoting professional development and effectiveness (Nagabhooshanam, 2022). The relevance of the content, the availability of resources, and a conducive learning environment have been identified as determinants of effective professional development. Also, the results suggest that contributions to the institution's professional development program could become even more effective through further enhancements to the training period and its frequency.

Table 3. Summary of the Correlation Results Between Training and Development Aspects and Professional Development

Training and Development Aspects	ρ	P-Value	Decision on H_0	Significance
Training Method	.613	<0.001	Reject H_0	Significant
Training Content	.520	0.002	Reject H_0	Significant
Training Duration	.340	0.053	Fail to Reject H_0	Not Significant

Training and Development Aspects	ρ	P-Value	Decision on H_0	Significance
Training Frequency	.527	0.002	Reject H_0	Significant
Trainer Expertise	.646	<0.001	Reject H_0	Significant
Training Resources	.603	<0.001	Reject H_0	Significant
Learning Environment	.365	0.037	Reject H_0	Significant

Table 3 presents Spearman's rho correlation analysis to assess relationships among training and development aspects and instructors' professional development. The findings indicated a significant positive relationship between training method (Spearman's $\rho(31) = .613, p < .001$), training content (Spearman's $\rho(31) = .520, p = .002$), trainer expertise (Spearman's $\rho(31) = .646, p < .001$), and training resources (Spearman's $\rho(31) = .603, p < .001$) and professional development. This means that improvements in these areas tend to enhance professional development among instructors, leading the researchers to reject the null hypothesis. The highest correlation was Trainer Expertise (Spearman's $\rho(31) = .646$), suggesting that the trainer's skill, knowledge, and effectiveness strongly influence instructors' professional growth. Degrees of freedom were calculated as $df = 31 (n - 2)$, where $n = 33$ represents the total number of college instructors surveyed, resulting in $df = 31$, which aligns with the requirements for Spearman's rank correlation analysis used in the study.

Meanwhile, the only variable that failed to reject the null hypothesis was Training Dura-

tion ($p = 0.053$), indicating that simply extending training duration does not significantly improve instructors' professional development. This implies that the quality, relevance, and delivery of the training are more effective than the duration taken. According to Dayagbil and Alda (2024), the most effective and efficient way to conduct professional development is needs-based, engaging, and focused on enhancing instructors' instructional skills. Dacholfany et al. (2024) noted that programs focused on the trainer's expertise, the relevance of the content, and classroom and behavior management strategies exert the greatest influence on instructors' performance and student outcomes. Although these findings revealed that instructors were highly satisfied with the training and development aspects, the need to personally fund their own development poses a significant challenge. This financial burden may affect long-term sustainability and morale, potentially limiting participation in future training opportunities unless institutional support is strengthened.

Table 4. Summary of Regression Results Showing the Effect of Training and Development on Professional Development

Predictor	F (1,31)	p	R	R ²
Training Method	7.92	.008	.451	.203
Training Frequency	13.25	< .001	.547	.299
Trainer Expertise	60.00	< .001	.812	.659
Training Resources	19.40	< .001	.620	.385

Predictor	Adj. R ²	B	β	SE	t
Training Method	.177	.445	.451	.158	3.20
Training Frequency	.277	.452	.547	.124	4.68
Trainer Expertise	.648	.763	.812	.099	7.74
Training Resources	.365	.620	.620	.141	4.40

Table 4 shows the regression analysis, which indicates that Trainer Expertise has the

strongest impact on professional development, with a beta value of 0.812 and a significance p-

value (<0.001). This means that the trainer's competence and expertise significantly impact how instructors learn new skills, such as digital literacy, adaptability, technology proficiency, and a continuous learner mindset, and how they implement them in their teaching practice or classroom management. Training Frequency and Training Resources also showed significant effects, indicating that frequent training opportunities with sufficient materials, tools, and learning resources can benefit instructors by enhancing skill development and improving teaching practices.

Furthermore, the adjusted R^2 values reflect the degree to which each training and development aspect explains instructors' professional development, with Trainer Expertise showing the strongest explanatory power. These results align with a study that emphasized that professional development initiatives work best when implemented during the early stages of teaching, such as the internship phase, where instructors can benefit from well-structured learning and applied practice (Linder & Weissblueth, 2024). Collaborative, mentoring, and teaching practice-related professional development have also demonstrated significant impacts on instructors' teaching competence, knowledge, and effectiveness (Regis et al., 2022). Overall, the findings suggest that the impact of professional development for instructors can be significantly improved by enhancing trainers' expertise, providing sufficient materials, maintaining regular training, and offering professional development opportunities through collaboration.

Conclusion

The study on the impact of training and development on the professional development of college teachers at St. Cecilia's College-Cebu, Inc. concludes that well-implemented training programs can go a long way to support the professional development of instructors. The researchers analyzed seven aspects of Training and Development (T&D), including training method, training content, training duration, training frequency, trainer expertise, training

resources, and learning environment. The researchers discovered that the effectiveness of training and development and instructors' professional development are positively correlated. Findings revealed that the training method, training resources, trainer expertise, and training frequency were significant predictors of faculty development, and that competent and knowledgeable trainers were recommended to positively impact teaching practice through the use of appropriate and systematic strategies, regular training opportunities, and adequate training materials. Although these results indicate that training initiatives equip instructors with competence, confidence, and long-term development, support and institutional resources are necessary to sustain the effectiveness of the training and development in the long run.

The study also emphasizes that effective training initiatives and sufficient resources help instructors enhance their skills, such as digital literacy, adaptability, and technology integration, and that regular training reinforces their knowledge and practices. Trainers' competence and knowledge play a major role in making the learning process more meaningful and aligning it with institutional goals. Even though the training content, training duration, and learning environment remain relevant, the study shows that prioritizing the four strongest predictors, training resources, training method, trainer expertise, and training frequency, can have a more direct, measurable improvement in faculty development.

Recommendation

Based on the study's findings, trainers' expertise, training frequency, training method, and training resources are significant predictors of college instructors' professional development. To enhance the quality of education and support the continuous professional development of faculty members, the researchers proposed a Training Framework that integrates trainers' expertise, training frequency, methods, and resources.

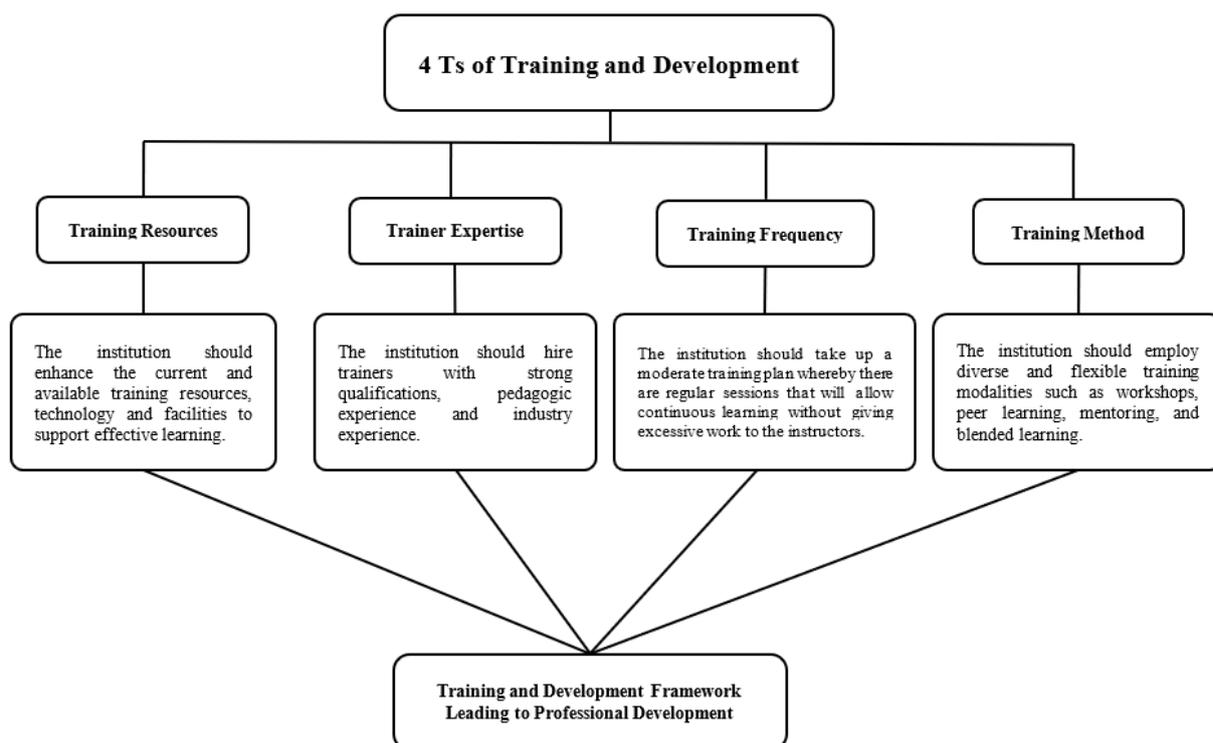


Figure 1: Training and Development Framework

Trainer Expertise. To ensure that professional development is positive, all training activities will be conducted by trainers who are well-versed in their subject and have experience. This is to make sure the programs are thorough, relevant, and useful in life. The trainers are skilled educators and will use this expertise to make the programs and sessions effective.

Training Frequency. To ensure instructors keep learning and growing, we need a regular training plan. This means we will have training programs every few months that focus on the most important things instructors need to know. We will also hold monthly training sessions covering specific topics, such as new tools and teaching methods. Every year, they will have a program for all instructors to learn new things and hear about new ideas in education. They will also have meetings where instructors can help and support each other, and these will happen once every term, so instructors can keep getting better at what they do, with professional development, professional growth, and professional development.

Training Method. To make teaching better and help instructors keep growing, training needs to go beyond the ways of teaching and focus on specific skills that instructors need to have. The plan is to make Digital Literacy and Technology Integration a main area of development. Instructors will participate in training programs to improve their use of Learning Management Systems for teaching, conducting tests, and tracking student learning. Training will also show instructors how to use technology in ways that make sense to support kinds of learning, such as online and face-to-face, and blended learning. This way, Digital Literacy and Technology Integration will be a part of how instructors teach and help students learn.

Training Resources. To ensure professional development is positive, the school should enhance its current training resources, such as technology and facilities, to support effective learning. Involving qualified experts in digital education, research methodology, and curriculum development will help to support professional development.

Future researchers are encouraged to undertake a more comprehensive examination of the proposed Training and Development Framework through a longitudinal research design. Specifically, a 3–5-year tracking study is recommended to assess the sustained impact of trainers' expertise, training frequency, training methods, and training resources on instructors' professional development. Such a longitudinal approach would enable researchers to assess long-term outcomes, including instructional effectiveness, research productivity, and leadership advancement. This extended investigation would provide stronger empirical evidence regarding the effectiveness and institutional impact of the proposed framework. Empirical findings, such as case studies and quantitative studies, can provide a more detailed perspective on which factors determine the extent of professional development and employees' performance outcomes. The systematic analysis of challenges encountered in the execution of effective training programs and the development of corrective measures would also be of significant value. The development of the empirical foundation can be used to improve instructional practice and provide practitioners, human resource professionals, and policymakers with information that is practical in the development of programs that lead to continuous improvement and organizational success.

References

- Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' Perceptions of Technology Integration in Teaching-Learning Practices: A Systematic Review. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.920317>
- Babu, M. R. (2025). The constructive and vital role of teachers and youth in nation-building. *EPRA Journals*. <https://doi.org/10.36713/epra19587>
- Basma, B., & Savage, R. (2023). Teacher Professional Development and Student Reading in Middle and High School: A Systematic Review and Meta-Analysis. *Journal of Teacher Education*, 74(3), 214–228. <https://doi.org/10.1177/00224871231153084>
- Dacholfany, M. I., Antoni, R., Sulissusiawan, A., Rijal, S., & Utiahman, A. (2024). The effectiveness of teacher professional development programs on classroom and behavior management: A systematic review. *Journal of Education and Practice*, 12(3), 451–470. <https://doi.org/10.15503/jecs2024.2.451.470>
- Dayagbil, F., & Alda, R. (2024). Continuing Professional Development Opportunities: Teachers' Motivation and Perceived Effectiveness. *International Journal of Education and Practice*, 12(3), 584–595. <https://doi.org/10.18488/61.v12i3.3733>
- Duk, C., Blanco, R., Zecchetto, F., Capell, C., & López, M. (2021). Teacher Professional Development for Inclusion: Collaborative Action Research through Lesson Study in Chilean Schools. *Revista Latinoamericana De Educación Inclusiva*, 15(2), 67–95. <http://dx.doi.org/10.4067/S0718-73782021000200067>
- Faudiah, N., Fadhilah, F., Fitriana, F., & Dewi, R. (2023). The impact of training and development on teacher performance. *Nidhomul Haq Jurnal Manajemen Pendidikan Islam*, 8(3), 454–467. <https://doi.org/10.31538/ndh.v8i3.4361>
- Kalim, U., & Bibi, S. (2024). Assessing Teacher Competencies in Public Schools of Pakistan: A pathway for improving the effectiveness of professional development programs for teachers. *SAGE Open*, 14(2). <https://doi.org/10.1177/21582440241236060>
- Linder, I., & Weissblueth, E. (2024). The effect of the professional development phase on the contribution of a teaching simulation during teaching staff's preparation and development. *Teacher Development*, 29(1), 93–106. <https://doi.org/10.1080/13664530.2024.2361128>
- Nagabhooshanam, J. (2022). Teacher empowerment towards professional development and effectiveness. *EPRA International Journal of Research and*

- Development*, 7(9), 141–143. <https://doi.org/10.36713/epra11351>
- Nardo, G.O., Polinar, M.A.N., Delantar, A.F.A. & Buntiago, J.L.G. (2022). Training and Development of the Rank-and-File Employees among Selected Hotels in Cebu City. *International Journal of Multidisciplinary: Applied Business and Education Research*, 3(7), 1309 – 1318. doi: 10.11594/ijmaber.03.07.11
- Nguyen, K. A., Borrego, M., Finelli, C. J., DeMonbrun, M., Crockett, C., Tharayil, S., Shekhar, P., Waters, C., & Rosenberg, R. (2021). Instructor strategies to aid implementation of active learning: a systematic literature review. *International Journal of STEM Education*, 8(1). <https://doi.org/10.1186/s40594-021-00270-7>
- Ramos-Rodríguez, E., Fernández-Ahumada, E., & Morales-Soto, A. (2021). Effective Teacher Professional Development Programs. A case study focusing on the development of mathematical modeling skills. *Education Sciences*, 12(1), 2. <https://doi.org/10.3390/educsci12010002>
- Regis, D. P., Tupas, J. P. C., Soniedo, F. D., & Lauzon, M. R. M. (2022). Determining the effectiveness of professional training of teachers in a local college. *European Journal of Education Studies*, 9(12). <https://doi.org/10.46827/ejes.v9i12.4600>
- Singh, I. (2023). Pedagogical advancements through teacher professional development: Impacts on classroom instruction and student attainment. *Global International Research Thoughts*, 11(1). <https://doi.org/10.36676/girt.2023-v11i1-17>