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SELF- EFFICACY AMONG LEADERS OF EDUCATION IN THE TECHNOLOGY ERA: A SYSTEMATIC REVIEW

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Abstract:

In the technology era, school leaders' self-efficacy plays a pivotal role in shaping educational outcomes. This abstract explores the significance of self-efficacy among school leaders in effectively integrating technology into their institutions, fostering innovation, and improving overall educational practices. This review seeks to synthesize the available knowledge, assess the effectiveness of self- efficacy among school leaders, and highlight critical areas for further research and improvement. This study used PRISMA approach. The systematic search of academic databases using Scopus and Web of Science database yielded a comprehensive selection of studies, reviews, and articles related to self- efficacy and leadership. After applied advanced searching approach using keyword (self- efficacy, education, and leader). The analysis revealed that self- efficacy of leaders played a pivotal role in improving educational management and accomplishment, building up motivation to do better for the institutions. The final finding data is (n=26) which review identified key themes, including the self- efficacy, leadership self- efficacy, and the importance of educators' motivation. Expert validation decided to

divide into three themes which is (1) teacher self- efficacy and educational practice, (2) leadership and self- efficacy and (3) professional development.

Introduction

In the ever-evolving landscape of education in the 21st century, school leaders face a myriad of challenges and opportunities, most notably, the integration of new technology. As the global educational environment becomes increasingly digital and interconnected, the role of school leaders in embracing and harnessing this technological transformation is of paramount importance (Akcay et al., 2022; Anheier & Knudsen, 2023; Zorlu & Zorlu, 2021). Among the critical psychological factors that influence the ability of educational leaders to navigate this era successfully is "self-efficacy." Self-efficacy, a concept rooted in Albert Bandura's social cognitive theory, pertains to an individual's belief in their own capacity to perform specific tasks and achieve goals (Schunk & DiBenedetto, 2020; Tantawy et al., 2021; Van Dinther et al., 2011). In the context of educational leadership in the 21st century, self-efficacy represents a dynamic psychological construct that profoundly impacts the way school leaders' approach, adopt, and adapt to the demands of a technology-driven educational landscape (Shang et al., 2022).

This introduction seeks to delve into the intricacies of self-efficacy among school leaders in the 21st century, examining its significance, implications, and multifaceted dimensions. It explores the specific challenges and opportunities faced by educational leaders as they navigate the complex interplay of leadership, technology, and the ever-changing needs of students and educational institutions (Akcay et al., 2022; Aktaş & Karaca, 2022; Ranta et al., 2022). The rapid proliferation of new technologies and digital tools has not only transformed the way teaching and learning occur but also demands a fundamental shift in the leadership styles and capabilities required from school leaders. The role of a school leader is no longer confined to administrative tasks and management; it now extends to being a visionary, an educational technologist, and a change agent (Adams et al., 2017; Adams & Velarde, 2021; Kivunja, 2014). It necessitates the ability to foster innovation, facilitate collaboration, and provide the vision and support required to navigate the digital frontier effectively. Understanding self-efficacy among school leaders in this context becomes crucial. Their belief in their ability to harness the potential of technology, guide their teams through change, and foster a culture of continuous improvement is instrumental in the successful adaptation of educational institutions to the demands of the 21st century (Adams & Velarde, 2021; Corrigan & Merry, 2022; Malhotra et al., 2020). This comprehensive exploration will encompass various dimensions of self-efficacy among school leaders, including how it effects leadership practices, the impact on organizational outcomes, and the role it plays in cultivating a culture of innovation and adaptability. Moreover, it will delve into the various factors that influence self-efficacy in educational leaders, ranging from personal traits to institutional support systems (Akcil et al., 2017; Papaioannou et al., 2022; Ramirez-Montoya et al., 2022).

In an era where the transformation of education is inextricably linked to technological advancement, an in-depth understanding of self-efficacy among school leaders is pivotal in equipping them to thrive in this dynamic environment (Adams et al., 2017; Kivunja, 2014;

Murphy, 2020). This inquiry not only contributes to the scholarly understanding of educational leadership but also holds practical implications for educational policymakers, institutions, and leadership development programs. As we venture further into the technology-driven 21st century, it is essential to empower educational leaders with the self-efficacy required to steer educational institutions toward a brighter, digitally enhanced future (Akcil et al., 2017; Choi et al., 2020; Velasco et al., 2022; von Thiele Schwarz et al., 2016)

Literature Review

This study looks into how EFL students' academic resilience and motivation are influenced by their self-efficacy, grit, and self-assessment. 385 students used a variety of scales to complete surveys. According to the findings, students who were highly motivated and resilient also had high levels of self-assessment. Grit tendencies and self-efficacy were also found to be useful in raising academic motivation and resilience in online examinations. This research could have educational ramifications for implementing technology-enhanced instruction and evaluation in schools. (Wicaksono et al., 2023). Utilising computer vision and artificial intelligence, the Real-time Automated STEM Engagement Detection System (RASEDS) evaluates students' involvement in STEM instruction. It maps interactions onto the ICAP framework using You Only Learn One Representation (YOLOR), suggesting adaptive learning resources to increase engagement and self-efficacy. The usefulness of the system in augmenting engagement and self-efficacy is underscored, underscoring the transformative potential of artificial intelligence in STEM education. (Wu et al., 2023). The study looks into how self-efficacy and the community of inquiry affect students' attitudes in long-term remote learning settings. Five U.S. colleges' 205 health professions students provided survey data. The findings demonstrated that increased social and instructional presence in distance learning settings was linked to increased self-efficacy in distance learning, which in turn predicted favourable attitudes towards distance learning. Students' favorability of distant learning was found to be significantly influenced by teaching, social, and cognitive presence. According to the study, instructors should concentrate on course design techniques that improve presence and raise student self-efficacy. (Burbage et al., 2023). According to a study conducted on two multilingual students in Norway, the students' self-efficacy beliefs (SEB), methods, and language learning motivation (LLM) did not fully improve or sustain their LLM, SEB, or achievement. Additionally, the study discovered that using a wider variety of digital LLS stopped these trajectories from becoming even weaker. Additionally, multilingual competence was shown to be ineffective over time, particularly in the absence of a multilingual morphosyntactic awareness component, according to the study. (Calafato, 2023).

The study looks into the connection between kids' ICT literacy and parental attitudes and behaviours linked to ICT. It employs an objective assessment of ICT literacy and adds as a secondary outcome variable the ICT self-efficacy of the youngsters. The findings indicate that whilst monitoring and supervision negatively correlates ICT literacy, parental ICT values positively predict it. Adolescent reports were shown to predict ICT self-efficacy by 27%, whereas parent reports were found to predict ICT literacy by 18% and adolescents by 8%. (Senkbeil, 2023). The impact of augmented reality on students' academic self-efficacy is the main emphasis of the study, which examines a conceptual model. The findings demonstrate how students' cognitive processes affect how they perceive and interact with technology and educational assignments. Academic self-efficacy in higher education is positively impacted by AR. The study highlights the need of teaching students positive cognitive techniques and identifying negative ones that lower their engagement and sense of self-efficacy. (O'Connor &

Mahony, 2023). This study looks at Indonesian aviation cadets' motivation, anxiety, and self-efficacy in studying Aviation English. The study employed a cross-sectional survey approach with 207 individuals. The findings revealed high levels of self-efficacy, anxiety, and motivation along with a developing combination of pessimism and optimism. The two factors that were discovered to have the most effects on cadets' learning performance were communication and exam anxiety. The goal of the study was to pinpoint the predictive subskills that influence these variables. (Rochmawati & Sukma, 2023). The study looks at the Indonesian aviation cadets' self-efficacy, anxiety, and desire for learning Aviation English. A cross-sectional survey design was employed in the 207 participants in the study. The learning optimism and pessimism grew concurrently, with results indicating high motivation, anxiety, and self-efficacy. It was shown that the two most important factors affecting cadets' learning performance were communication and exam anxiety. Finding predictive subskills that contribute to these parameters was the study's goal. (Ramli et al., 2024).

This study examines how preservice teachers' perceptions of their fit with the profession, career intentions, and self-efficacy are affected by an online scenario-based learning intervention. Over the course of two years, a sample of 1,513 instructors from an undergraduate teacher education programme in Australia completed three sessions. After the first session, the results indicated higher levels of self-efficacy, teaching commitment, and perceived fit. (Klassen et al., 2023). v (Ismail et al., 2023). This study surveyed 2380 higher education students about their technological characteristics and self-efficacy towards flexible learning. The majority were female, with a small percentage from low-income families. Most used smartphones and laptops for learning, but were novices in online learning management systems. The study provided valuable insights for curriculum designers, educators, and administrators to create a teaching and learning framework that considers students' current technological characteristics and self-efficacy, especially during the COVID-19 pandemic (Talosa et al., 2024). Extramural English (EE), gender, self-efficacy, and external attributions were found to have a substantial impact on the learning results of 42 Norwegian EFL students in a study. Writing self-efficacy and attributions to films, TV shows, and literature positively predicted productive vocabulary exam scores, but receptive EE negatively predicted them. There was no discernible mediation influence between learning outcomes, self-efficacy, and EE. (Rød & Calafato, 2023).

In the US, there are differences in the accessibility of high-quality early childhood education and care settings, and teachers are essential in helping children develop their socioemotional skills. Ineffective teaching and emotional weariness are two consequences of disruptive behaviour. Enhancing teachers' self-efficacy and classroom management abilities is the goal of Teacher-Child Interaction Training-Universal (TCIT-U). Especially for teachers with varied backgrounds and dual language learners, TCIT-U was proven to be beneficial in enhancing teachers' sense of competence in classroom management, instructional techniques, and student engagement in a randomised, wait-list control research. (Rivas et al., 2023). Nursing students' happiness and self-confidence in simulation learning during the COVID-19 pandemic were found to be lower than in prior surveys, according to a cross-sectional survey done at a private institution in Jordan. The range of learning activities and the ability to have the confidence to acquire the requisite abilities received the lowest ratings. However, students' levels of confidence in simulation-based learning increased as they advanced through their bachelor's degree programmes. According to the study, in comparable circumstances, high-fidelity simulation may be more advantageous. (Alsadi et al., 2023). Empowerment education dramatically increased liver transplant recipients' self-management abilities and self- efficacy,

according to a Chinese study. In comparison to the control group, the intervention group performed better in the areas of exercise, lifestyle management, cognitive symptom management, physician communication, and self-efficacy, suggesting that it was beneficial. (Guo et al., 2023).

Material and Methods

Identification

In this study, the technique's three fundamental procedures were followed, and the outcome was the identification of numerous pertinent papers. Part one involves locating and cataloguing key terms by meticulously scrutinising prior research and using dictionaries, thesauri, and encyclopaedias. Search algorithms were created to be utilised on the databases of Scopus and Web of Science after each significant word was chosen and compiled (see Table 1). During the initial part of our thorough review process, this method produced a large 888 articles from both databases, demonstrating its effectiveness. Data collection during the inquiry was largely dependent on the documentation strategy.

Table 1: The Search String

Scopus	TITLE (leader* AND "self-efficacy" AND education) AND (LIMIT-TO (PUBYEAR, 2021) OR LIMIT-TO (PUBYEAR, 2022) OR LIMIT-TO (PUBYEAR, 2023)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English"))
WoS	(leader* AND "self-efficacy" AND education) (Topic) and 2023 (Publication Years) and Article (Document Types) and English (Languages)

Screening

The screening phase then entailed a careful examination of the articles that were found. Duplicate documents were first eliminated. In the initial phase, three articles were disqualified. It was imperative at this time to restrict the research emphasis to only those items that directly aided in achieving the goals and purposes of the study. This required establishing general eligibility requirements, such as the publishing date (which had to be between 2021 and 2023), the document's language, and the publication kind (only research articles were chosen). Other formats, such as book chapters, meta-analyses, and systematic reviews, were categorically disregarded. As a result, a sizable number of articles were eliminated at this stage, leaving 80 pertinent articles for additional review. 805 publications in all were disqualified due to these specific criteria.

Eligibility

Eighty articles have been produced for the third level, which is called eligibility. At this point, the titles and important contents of every article were carefully examined to make sure that the inclusion criteria were met and that the papers fit into the current study and its goals. As a result, 54 publications were excluded since their titles, abstracts, or out-of-field content had nothing to do with the study's goal. Lastly, Table 2 indicates that 26 articles are accessible for review.

Table 2: The Selection Criterion is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2021 - 2023	< 2021
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press

Data Abstraction and Analysis

One of the assessment procedures in this study was an integrative analysis, which looked at and synthesised a range of research designs (qualitative, mixed, and quantitative). The competent study's objective was to pinpoint pertinent subjects and subtopics. Data collection was the initial phase of the theme's development. Figure 2 demonstrates how the writers carefully examined a collection of 26 publications to look for claims or information pertinent to the subjects of the current investigation. The authors then reviewed the important recent research on leaders in education who feel confident in their abilities. Investigations are being conducted into the research findings and the methods applied in all of the studies. The author then worked with other co-authors to create themes based on the data in the background of this study. Throughout the data analysis process, observations, opinions, puzzles, and other ideas pertinent to the interpretation of the data were recorded in a log. In order to determine whether the theme design process was inconsistent in any way, the writers finally compared the outcomes. It's important to note that the authors debate any differences in opinion among the notions with one another. Eventually, the generated themes were adjusted to guarantee coherence. Two experts, one in leadership (Halimah Mohd Yusof, expert in education leadership and training) and the other in technology (Wan Azani Mustafa, specialist in educational technology), conducted the analysis and selection process to ascertain the validity of the issues. By defining the domain, the expert review step guarantees the significance, appropriateness, and clarity of each subtheme.
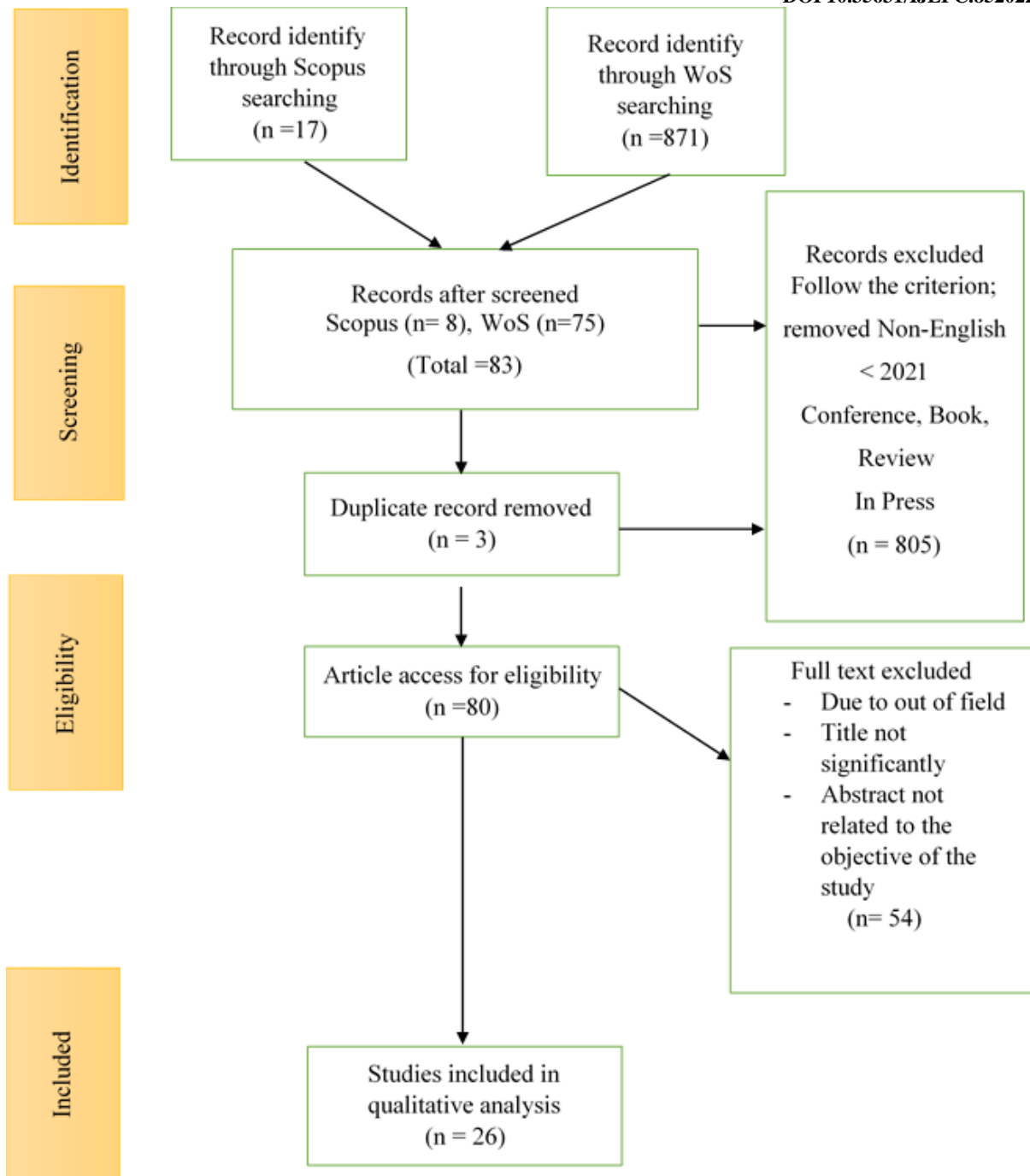
Figure 1: Flow Diagram Of The Proposed Searching Study
Source: (Moher D, Liberati A, Tetzlaff J, 2009)

Result and Finding

The research article finding based on the proposed searching criterion:

Table 3: Teacher Self- Efficacy and Educational Practice

Authors	Study Scope	Journal	Methodology	Advantages and Findings
Kengatharan, N; Gnanarajan, AH (Kengatharan & Gnanarajan, 2023)	Classroom Management and Student Misbehaviour: The Moderating Effect of Teacher Self-Efficacy	International Journal of Educational Management	The study uses gender schema theory and Bandura's social cognitive theory to examine the link between teacher self-efficacy and student misbehavior in Sri Lankan secondary schools.	The study reveals no moderating effect of teacher gender on self-efficacy and student misbehavior, suggesting strategies for teacher preparation, school leadership, classroom management, and education administration.
Polatcan, M (Polatcan, 2023)	The Mediating Role of Motivation to Lead: The Impact of Leadership Self-Efficacy on College Students' Leadership Practise	International Journal of Educational Leadership and Management	This study explores the relationship between leadership self-efficacy, motivation to lead, and leadership practices among 545 Turkish undergraduates, highlighting the significant impact of these factors on leadership behaviors.	The study reveals that enhancing student leadership self-efficacy beliefs directly impacts leadership practices, with motivation partially mediating this relationship. Educational activities should focus on developing these beliefs.
Koul, R; Musikul, K; Nishikawa, S; Almutawa, H (Koul et al., 2023)	A Mixed Methods Study on Mentoring in the Development of Science Teaching Self-Efficacy Among Thai Primary School Teachers	Journal of Science Teacher Education	This study employed a sequential mixed methods explanatory research design to examine the influence of mentoring in the self-efficacy-forming experiences of primary school teachers who participated in several professional development projects on scientific teaching.	The study revealed the importance of culture and emotions in teacher learning by showing how collaborative mentee-mentor activities and interpersonal interactions strongly impact teachers' personal science teaching self-efficacy, result anticipation, and instructional change.

Authors	Study Scope	Journal	Methodology	Advantages and Findings
Maisaroh, S; Endahati, N; Andrian, D (Maisaroh et al., 2023)	Primary School Teachers' Involvement Model in Classroom Management	International Journal of Instruction	This study examines factors influencing teachers' involvement in Yogyakarta Province primary schools, using quantitative correlational and expert-validated questionnaires, to guide policy development for effective classroom management.	The study reveals that the Principal's Role, self-efficacy, and colleague variables significantly impact teacher involvement in classroom management, while there is no effect on environment.
Strunc, AR; Coke, KL; Price, DP (Strunc et al., 2023)	Developing Leaders Abroad: Improving the Effectiveness of Educational Leadership via Short-Term Study Abroad	International Journal of Educational Leadership and Management	Studying abroad impacts participants' perceptions of leadership styles, emphasizing the benefits and importance of effective leadership development for education and students, maintaining anonymity.	The essay examines leadership through seven student interviews, emphasising perception shifts, style modifications, and increased competence and confidence in one's own leadership skills.
Law-Davis, S (Law-Davis, 2023)	The Confidence of Early Childhood Teachers in Teaching Religious Education and the Factors Affecting Their Ability to Teach in Catholic Primary Schools	Religions	The study explores the factors influencing early childhood and care teachers' confidence in teaching Religious Education in Catholic primary schools in Western Australia.	The study explores teacher confidence in Religious Education in Catholic schools in Australia, focusing on factors such as training, family background, teaching, mentoring, and support in the first year.

Authors	Study Scope	Journal	Methodology	Advantages and Findings
Blaich, C; Kenny, B; Jimenez, Y (Blaich et al., 2023)	Leadership in Ethical Practise: Learning Objectives for Students	Journal of Academic Ethics	According to a University of Sydney study, the Leadership in Ethical Practise programme improves ethical leadership abilities but falls short in terms of clinical placement expertise.	Although the Leadership in Ethical Practise programme improves students' ethical leadership abilities, it frequently falls short in terms of clinical placement abilities. According to a study of 82 radiography students, 61% of their goals had SMART components and plans for future growth.
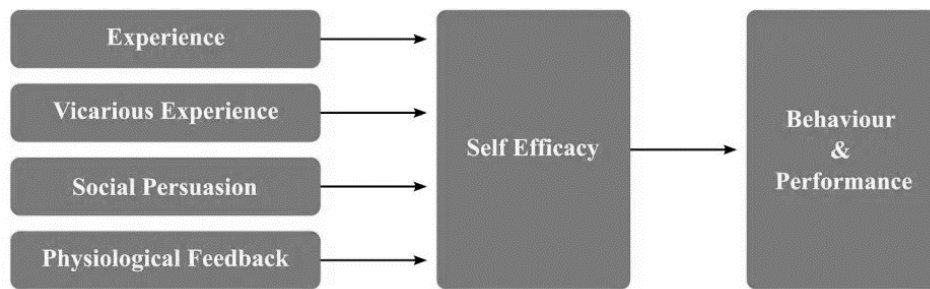
**Figure 2: Elements of Self- Efficacy**

Source: (Bandura, 1986)

Table 4: Leadership and Self- Efficacy

Author	Title	Journal	Methodology	Advantages and Findings
Scott, T; Guan, WY; Han, HM; Zou, XL; Chen, YZ (Scott et al., 2023)	The Effects of Self-Efficacy, Institutional Support and Policy, and Academic Optimism on Continual Professional Development of University Instructors in Mainland China	Sage Open	This study examines the relationship between academic optimism, institutional policy, and teacher self-efficacy in Chinese higher education, highlighting the need for improved professional development for instructors.	According to the study, instructor self-efficacy has little bearing on continuous professional development (CPD), but institutional policy and academic optimism have a favourable effect. Establishing a culture of continuous learning in academia requires

Author	Title	Journal	Methodology	Advantages and Findings
				institutional leadership.
Dzul, H; Hussin, Z; Sulaiman, AM (Dzul et al., 2023)	The Impact of Professional Learning Community Mediators on Islamic Education Teachers' Self-Efficacy and Trust in Malaysia	Malaysian Journal of Learning & Instruction	This study looked at the connections between self-efficacy, professional learning communities, and trust in 112 elementary schools with 642 Islamic education teachers from Malaysia. The Monte Carlo bootstrapping approach was used to perform a mediator test and multilevel analysis.	According to the study, teachers' levels of trust and self-efficacy are greatly influenced by their professional learning community, and maintaining this community is essential to successful and efficient school operations.
Ma, Y; Chen, M; Guo, HF; Fan, WX; Lai, LJ (Ma et al., 2023)	The Impact of Transformational Tutoring Style on the Innovative Behaviour of Postgraduate Students: The Mediating Function of Creative Self-Efficacy	International Journal of Digital Multimedia Broadcasting	Using social cognitive theory and empirical data from 362 students in southwest China, the study examines the impact of transformational tutoring style on postgraduate students' innovative behaviour.	The results of the study show that transformational tutoring greatly improves the innovative behaviour of postgraduate students. This effect is further enhanced by an integrated cultivation model, collaboration across various courses, and creative self-efficacy.
Cheng, WJ; Wang, ZH; Fang, R; Kayani, S; Biasutti, M (Cheng et al., 2023)	The Way a Leader Manifests Humility in a Physical Education Setting Examining the Chain Mediation Effect of Teacher Efficacy and Felt Obligation on Teacher Work Engagement	Sustainability	Using data from 579 instructors, the study investigates the effect of humility conveyed by leaders on the job engagement of physical education teachers in Chinese primary and secondary schools. The study points out its shortcomings and	The study discovered that work engagement among physical education teachers is significantly predicted by leaders who exhibit humility. This finding has consequences for management and

Author	Title	Journal	Methodology	Advantages and Findings
			recommends more investigation.	practise and also has indirect effects through teacher efficacy and perceived obligation.
Hazzam, J; Wilkins, S (Hazzam & Wilkins, 2023)	The Effects of Technology Use and Lecturer Charismatic Leadership on Online Student Engagement, Learning Outcomes, and Satisfaction	Computers & Education	Based on data from 659 US higher education students, this study attempts to uncover charismatic leadership and technological use among lecturers in order to improve student engagement and learning in online classes, ultimately boosting satisfaction.	The use of technology and the captivating leadership of lecturers have a major impact on student engagement, learning performance, and happiness. This is especially true for students with lower levels of self-efficacy, highlighting the significance of lecturer and learner qualities in online classes.
Cai, HY; Dong, HX; Li, X; Wong, LH (Cai et al., 2023)	Do Teachers' Intentions Match Their Real Use? Examining the Chinese K–12 Teachers' Use of Open Educational Resources Predictors	Sustainability	The study looks into what influences the quality and use of open educational resources (OER) by K–12 instructors. Data from 1398 Chinese instructors are analysed using the integrative model of behaviour prediction. The results are at odds with earlier research on the subject.	According to the study, teachers' use of OER is more strongly predicted by distal OER-related characteristics than by intention and attitude. Teachers' use of OER is positively influenced by self-efficacy. The results point to opportunities for future growth in the use of OER in Chinese K–12 education.
Aktaş N.; Karaca F. (Aktaş &	The association between the attitudes and competences of		With 338 participants from 112 Anatolian high schools, the study examined the	According to the study, school administrators that possess these

Author	Title	Journal	Methodology	Advantages and Findings
Karaca, 2022)	Turkish high school administrators regarding the use of technology in the classroom and their self-efficacy as technology leaders		relationship between the technological leadership self-efficacy of high school administrators and their attitudes and competencies towards the use of technology in the classroom.	qualities—self-efficacy, positive attitudes, and competence in technology leadership—are more effective in integrating technology into their practises and cultivating a culture of digital learning.
Urkmez, B; Singhani, S (Urkmez & Singhani, 2023)	The effectiveness of experiential group training in helping counselors-in-training develop their leadership self-efficacy	Journal for Specialists in Group Work	In order to improve master's students' group leadership self-efficacy, a novel experiential group training (EGT) design was used in the pilot project, which assessed the efficacy of the approach both in-person and virtually.	The results demonstrated that students' self-efficacy in group leadership had considerably improved in both training modalities. The ramifications for creating immersive group training programmes are discussed.
Pan, HLW; Cheng, SH (Pan & Cheng, 2023)	Analysing Teacher Learning Communities' Effects on Professional Development and Self-Efficacy: Using Theory-Driven Evaluation	Sustainability	Using structural equation modelling, a study comprising 226 Taiwanese elementary and junior high school teachers sought to determine how a Learning Community programme component affected their beliefs and practises on professional learning.	The study shows that teachers' experiences in TLCs have a direct impact on their attitudes and behaviours related to professional learning. This expands our understanding of self-efficacy and offers useful tools for teacher development.
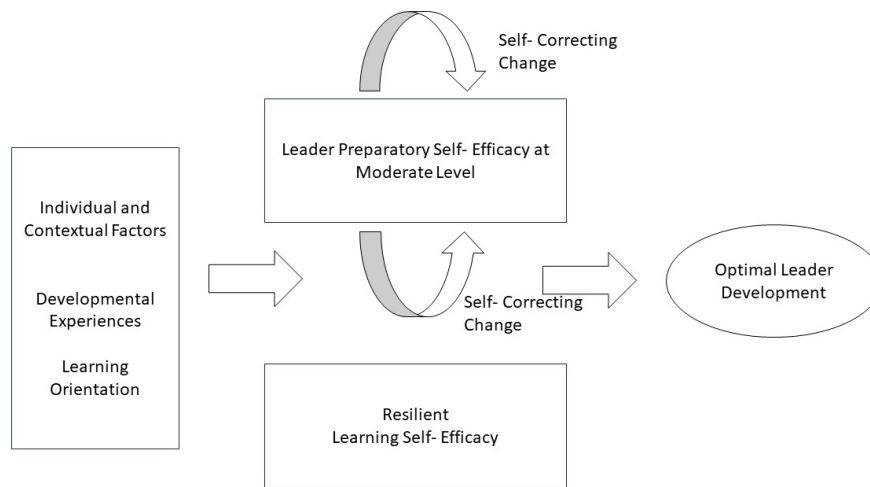
Figure 3: Model of Optimal Leader Development In Relation To Self-Efficacy
Source: (Machida, 2011)

Table 4: Professional Development

Author	Title	Journal	Methodology	Advantages and Findings
Wang T.; Deng M.; Tian G. (Wang et al., 2022)	The study explores the impact of distributed leadership, teacher leadership, and self-efficacy on Chinese inclusive education teachers, aiming to enhance their leadership practices.		In order to support sustainable development, this study uses structural equation modelling to examine the relationships between organisational and individual school leadership, teacher self-efficacy, and leadership styles among 893 inclusive education teachers in Beijing and Shenzhen, China.	According to the study, inclusive ideals and outside support networks moderate the beneficial benefits of principal-distributed, inclusive education teacher leadership on teacher self-efficacy.
Jaworski M.; Panczyk M.; Leńczuk-Gruba A.; Nowacka A.; Gotlib J. (Jaworski et al., 2022)	The Importance of Perfectionism and Self-Efficacy in the Development of Genuine Leadership Skills in Nursing Education		Using instruments such as the genuine Leadership Questionnaire, Almost Perfect Scale-Revised, and General Self-Efficacy Scale, the study investigated whether perfectionism can mediate between	In nursing students, perfectionism has a major impact on the connection between self-efficacy and genuine leadership. The relationship is favourable even in the absence of a mediator, but it is strengthened in their

Author	Title	Journal	Methodology	Advantages and Findings
			self-efficacy and genuine leadership qualities in nursing students among 615 Polish nursing students.	presence. Consequently, academic instructors ought to concentrate on enhancing their students' adaptive perfectionism and sense of self-efficacy.
Ahmed T.; Chaojun Y.; Hongjuan Y.; Mahmood S. (Ahmed et al., 2022)	The Impact of Empowering Leadership on Job Performance of Higher Education Institutions Employees: Mediating Role of Goal Clarity and Self-Efficacy		Using statistical techniques like SPSS and AMOS, the study intends to assess the effect of empowered leadership on academic work performance among 400 Pakistani higher education professionals, with a focus on goal clarity and self-efficacy.	In Sindh, Pakistan, empowered leadership has a favourable impact on self-efficacy, goal clarity, and job performance. Higher levels of self-efficacy are the outcome of self-efficacy mediating the effect.
Choi J.; Kang W. (Choi & Kang, 2021)	A serial mediation analysis of the impact of transformational leadership on teachers' self-efficacy in teaching for sustainable development		This study explores mediation effects and looks at how transformational leadership affects teachers' self-efficacy in Early Childhood Development (ECD).	The efficacy of teachers in ESD environments is greatly impacted by principal transformational leadership, according to a study on 193 in-service teachers in Korea. The study also made recommendations for further research.

Author	Title	Journal	Methodology	Advantages and Findings
Allison, J (Allison, 2023)	Categorising the Features of Successful Continuing Professional Development (CPD) for 16–18 Computer Science Teachers	Acm Transactions on Computing Education	The paper emphasises the value of chances for ongoing professional development for computer science instructors working with students in grades 16 through 18, stressing important features including knowledge growth, assessment of self-efficacy, and institutional support. Interviews with 32 staff members from 13 English colleges are also included in the study.	In addition to offering 30 recommendations for efficient CPD in the 16–18 sector, the study identifies five important themes for computer science CPD: knowledge domains, institutional support, engagement, activities, and quantifiable.
Hulteen, RM; Lubans, DR; Rhodes, RE; Faulkner, G; Liu, Y; Naylor, PJ; Nathan, N; Waldhauser, KJ; Wierts, CM; Beauchamp, MR (Hulteen et al., 2023)	Using a cluster randomised controlled trial design, the peer leadership for physical literacy intervention was evaluated.	Plos One	The study examined teacher evaluations, leadership self-efficacy, motivation, and programme adherence in order to evaluate a peer leadership programme for elementary school kids and students in grades 3/4. In six schools in 2019, a two-arm cluster randomised controlled experiment was carried out.	In younger Grade 3/4 students, the intervention had no discernible effect on teachers' assessments of students' transformational leadership, leadership self-efficacy, or physical literacy. Although there was no significant improvement in the delivery mechanism, teachers reported a high level of self-adherence to the intervention.
Çetinkaya, A; Arastaman, G (Çetinkaya & Arastaman, 2023)	The Importance of Leadership Motivation in Teacher Leadership	Journal of Qualitative Research in Education-Egitimde	Using Chan and Drasgow's Motivation to Lead Model, the study uses semi-structured	The research emphasises motivation and individual differences in

Author	Title	Journal	Methodology	Advantages and Findings
		Nitel Arastirmalar Dergisi	interviews with 15 teachers to examine the effect of motivation on teacher leadership in Turkish education.	leadership education and growth, suggesting that teaching professional tendencies can transition into teacher leadership.
Dori, YJ; Goldman, D; Shwartz, G; Lavie-Alon, N; Sarid, A; Tal, T (Dori et al., 2023)	Evaluating and contrasting other certification programmes: the community-teacher-classroom model	Frontiers in Education	It was discovered in a study comparing five Israeli alternative certification programmes (ACPs) that new teachers had difficulties adjusting to life in the classroom. The project prepared instructors and evaluated ACPs using a teacher-classroom-community paradigm.	According to the study, graduates in STEM fields place more value on knowledge and discipline than graduates in social leadership, who place more value on leadership abilities. It places a strong emphasis on assessing oneself and teacher certification programmes using the teacher-classroom-community approach.
Wade, L; Beauchamp, MR; Nathan, N; Smith, JJ; Leahy, AA; Kennedy, SG; Boyer, J; Bao, R; Diallo, TMO; Vidal-Conti, J; Lubans, DR (Wade et al., 2023)	'Learning to Lead' cluster randomised controlled trial: rationale and study protocol for examining the direct and indirect impacts of a school-based leadership programme for primary school pupils	Plos One	The study aims to evaluate the impact of the Learning to Lead (L2L) leadership programme on teachers' physical activity, stress levels, well-being, and leadership effectiveness.	Twenty schools near the University of Newcastle will participate in a three-phase L2L program, including school champions' training, peer leaders' lessons, and peer leaders' FMS program.
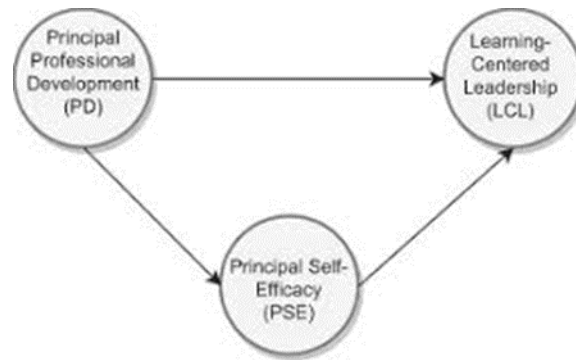
Figure 4: Conceptual Framework Of The Relationship Between (PD) And (LCL)
Source: (Gümüş & Bellibaş, 2020)

Discussion and Conclusion
Findings show that several main challenges are faced during the development of self- efficacy among school leaders, however, it is very beneficial in developing teachers' self- efficacy and in teachers' professional development. The findings provide valuable insights into enhancing educational practices and teacher development such as in teacher efficacy, leadership, technology, integration, and professional development.

The following discussion and conclusions can be made;

Theme 1: Teacher Self- Efficacy and Educational Practice
The first section of the results discussion focuses on the relationship between teacher self-efficacy and reduced student misbehaviour, as well as the beneficial effects of institutional policy and academic optimism on continuous professional development (CPD). As a result, professional learning communities are essential for helping teachers develop trust and self-efficacy (Velasco et al., 2022), and leadership practises are directly impacted by student leadership self-efficacy. The utilisation of open educational resources (OER) in Chinese K–12 education is positively influenced by self-efficacy, and collaboration and mentoring activities predict scientific teaching self-efficacy. While having certain drawbacks, leadership development programmes also improve leadership abilities (Bhana & Suknunan, 2020). Together, these results demonstrate the complexity of leadership, teacher development, and the part self-efficacy plays in academic achievement.

Theme 2: Leadership and Self- Efficacy
To reinforce what has already been said, principal-distributed and inclusive education teacher leadership positively affects teacher self-efficacy (Wang et al., 2022), and school administrators' technology leadership self-efficacy, attitudes, and competencies are critical to enhancing technology integration processes in educational contexts. For nursing students, perfectionism acts as a mediator in the relationship between self-efficacy and genuine leadership, highlighting the significance of emotional elements. However, it is also discovered that empowered leadership is associated with improved work performance, with self-efficacy and goal clarity serving as moderators (Bhana & Bayat, 2020; Santiago-Torner, 2023). Further emphasising the importance of leadership in this context is the fact that principle transformational leadership has a substantial impact on teachers' effectiveness in the field of education for sustainable development (ESD).

Theme 3: Professional Develepmont

Effective professional development for school leaders includes addressing knowledge domains, securing institutional support, encouraging participation, providing pertinent activities, and guaranteeing measurability. Even while certain initiatives might not have a major effect on leadership development or student results, leaders might use their enthusiasm and teaching inclinations to shift into positions of significant teacher leadership (Malhotra et al., 2020). Graduates with backgrounds in social leadership tend to place more value on leadership qualities than knowledge; this is especially true for those from STEM programmes. The paradigm of the teacher, classroom, and community is essential for assessing teacher certification programmes in a variety of settings (Ranta et al., 2022).

In conclusion, the studies collectively emphasize the importance of self-efficacy, leadership, and effective professional development in education. Teacher self-efficacy influences student behavior, while well-structured professional development is key, involving knowledge domains, support, engagement, activities, and measurability (Schwörer, 2021; Suhifatullah et al., 2020). Leadership, whether by administrators or teacher leaders, significantly impacts teacher self-efficacy. Motivation and teaching tendencies play crucial roles. Graduates' priorities vary, emphasizing knowledge or leadership skills (Calafato, 2023; Ramirez-Montoya et al., 2022). These insights underscore the multifaceted approach required for educational improvement.

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Conflicts of Interest

The authors declare that they have no conflicts of interest to report regarding the present study.

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